



FRIDAY, SEPTEMBER 5, 1879.

## Contributions.

## The Proposed Isthmus Ship Railroad.

SHARPSVILLE, Mercer County, Pa., Aug. 11, 1879.  
TO THE EDITOR OF THE RAILROAD GAZETTE:

I imagine that almost every American engineer who has read the letters of Captain Eads, and of Messrs. Chanute, Smith and Flad, printed in your issue of Aug. 8, and your comprehensive and suggestive editorial comments of the same date upon the subject matter of those letters, has felt an impulse toward giving the world at large, or at least that portion of the world immediately in his vicinage, the ideas that have formed in his mind after his more or less careful consideration of the proposition made by Captain Eads.

That impulse will, in most cases, be insufficient to carry the engineer through the labor of elaborating his ideas and putting them in writing; and in many cases the ideas, after having been confided to paper, will have no chance for being of service to the world, because they will not be given to the public. Perhaps some idea thus expressed might, if season-

railroad will be as great, or greater, than that of the canal, and the cost of maintenance less.

Further, after the completion of sufficient surveys, and competent and thorough examination of the route adopted for the railroad, the cost of the road may be estimated with precision, while in the case of the canal, with its stupendous—what word is there that can adequately suggest its dimensions—tunnel, and the almost interminable work along the line necessary to divert, or otherwise provide for, the surface-water and the water-courses intersected by the excavations, a limit to the cost can hardly be intelligently fixed. An estimate of the cost of the construction of a ship canal through a plain, gently undulating, but having nowhere any great elevation, and through a material almost uniform in quality, and nowhere such as to make blasting necessary, may be made with a reasonable precision, certain facts as to the cost of labor and material being known; but the problem presented to the engineer who undertakes to estimate the cost of a ship-canal to be carried, at the ocean level or otherwise, across the Isthmus of Panama, is one in which there is hardly one known quantity stated.

Confronted with the question as to how a vessel should be carried in her journey overland, we should consider that a ship is constructed with a view to the fact that her hull is to be sustained and held together by the pressure of the water in which she is to float, and that a large vessel when out of water will be strained and injured, except she be held in an

need to provide for at least 30 ft. of water in the caisson, and should have something to spare for leakage, so we will make the water 30 ft. deep, on a level.

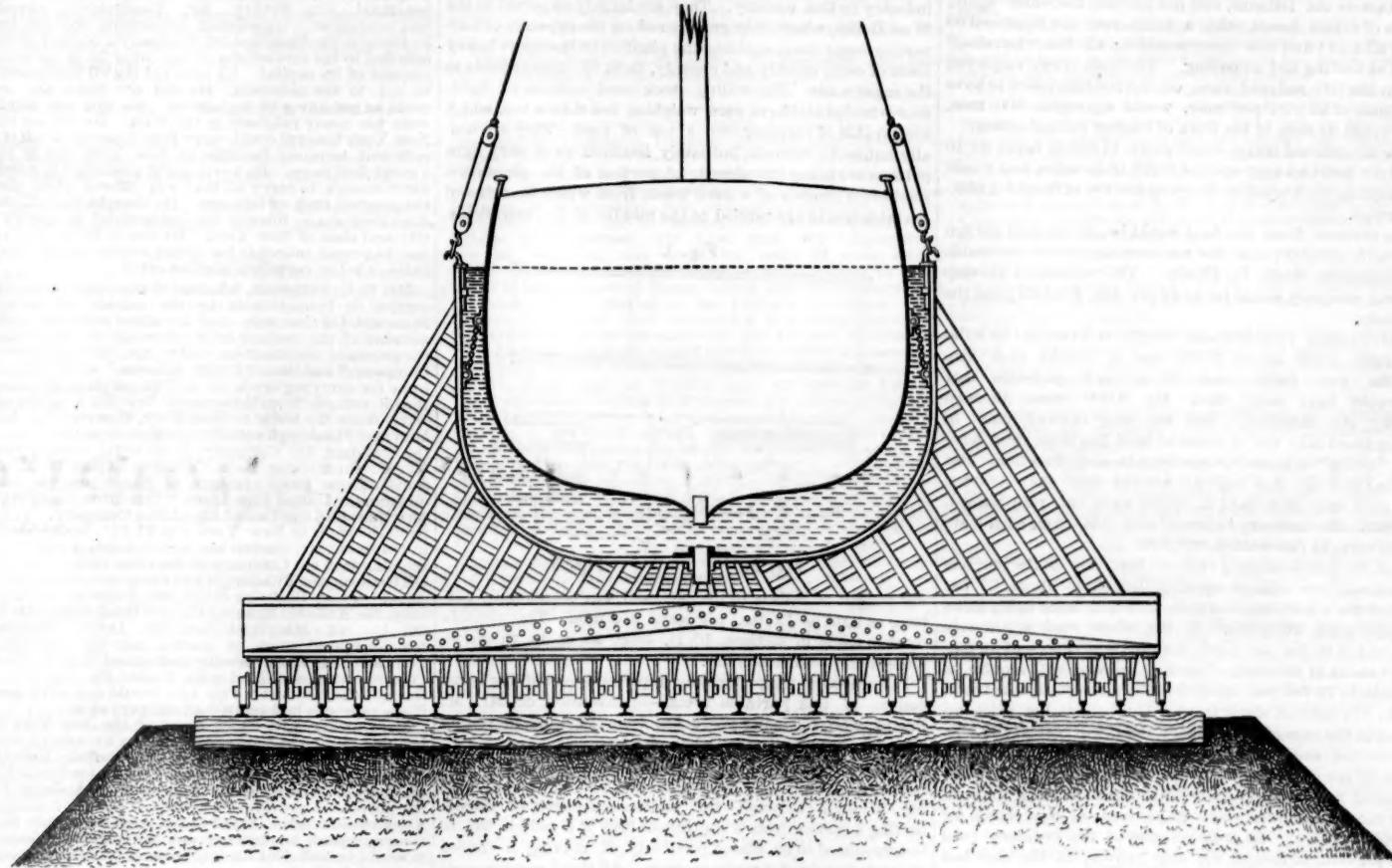
If the caisson leaks, as it doubtless will, we replenish it from the large water-pipe that will be laid along the road-bed, with hydrants and hose at convenient points.

When in the caisson the ship would be held from fore-and-aft movement by hawsers, and from rolling by preventer stays, made fast to chain plates on the shell of the caisson and to the ship's mast-heads. Elastic fenders would be fitted between sides of ship and the caisson.

I estimate for 184 sets of wheels, 25 wheels in a set, wheels to be 24 in. diameter; the outside ones only to be flanged. The axle to be 5 in. diameter, and the wheels all loose on the axles. The axle in sections connected by sleeves. If a wheel breaks we can jack up the truss under which the broken wheel is, and, after disconnecting the axle at the sleeve nearest the disabled wheel, slip the section of axle sideways, and then, having slipped the new wheel over the free end of the axle, replace the whole.

The rails to carry the caisson and the engines to move it, may be no heavier than 60 lbs. per yard, but 70 lbs. per yard would be better.

Changes in the direction of the road should be made by means of swing-tables, long enough to receive the caisson, and the engines pushing and hauling it; the table to move on wheels set on radial axes. By continuing any tangent



CRADLE FOR PROPOSED SHIP RAILROAD.

ably communicated, prove of incalculable value to those who will have to design and perfect appliances for the work, and to overcome the very many difficulties that stand in the way of a satisfactory accomplishment of the great work to be undertaken.

I therefore urge civil and mechanical engineers, shipwrights, and mechanics generally, to speak out if they think that they have anything that will be of service to the enterprise, either as showing how a certain thing may be done, or as showing how and why a certain other thing must be avoided. Remember that once when a great engineering operation was about to end in disaster, at the critical moment an entirely unofficial and unprofessional person, in an entirely impulsive manner cried out, "Wet the ropes!" and thereby was the savior of the engineer of the undertaking as well as of the undertaking itself.

A chain of a thousand links may have nine hundred and ninety-nine perfect links, and yet fail because of a flaw in the thousandth link. Before the construction and satisfactory operation of the ship-railway will be possible, a thousand novel demands must be supplied by invention, or by modifications of known devices. The man who supplies only one link in this chain will contribute to the perfect whole as absolutely as he who supplies ten links.

In indorsing this, my exhortation, you, Mr. Editor, will, of course, bring upon yourself a considerable labor, but I am confident that the prospect of that labor will not deter you from seconding me.

As for myself, I desire to range myself with those who advocate the scheme for a ship railway rather than a canal, across the Isthmus, on the grounds explicitly stated by Captain Eads and Mr. Flad: 1st, that, as compared with a canal, the railroad will cost very much less, and may be constructed in much less time; 2d, that the capacity of the

upright position, with her keel and bilges uniformly supported.

We cannot maintain a road-bed, and the many lines of rails necessary to carry a car, supporting a ship and her cargo, in a true plane. Nor could we, if we wished to do so, to carry a car, to be long enough, and heavy and strong enough, to carry a loaded ship, that will not conform to all the twists in the surface of the road on which it may be moved. If we are to move our ship on wheels, at the rate of six or eight miles per hour, without straining her, we must move her afloat, and to do this must make a caisson, of a cross-section

preferably as nearly like that of the ship as may be, and carry the ship in it, protected from jar and twist by what we may call a cushion of water. The caisson may be made of steel plates, and supported and arranged on a plan of which the subjoined sketch gives an idea. Three or four sizes of caisson would probably be used. A yacht like the "America," 98 feet long, over all, may be carried in a "cradle," without the water-cushion.

A ship of war of the Warrior type is 380 ft. long, 58 ft. beam and 37½ ft. hold, and at a draft of 26 ft.; has a displacement of 9,000 tons; her "wet surface" equals about 40,000 square ft.

The Niagara, U. S. N., is 330 ft. long, and 55 ft. beam, and at a draft of 23 ft. has a displacement of 5,440 tons.

The Twilight, clipper ship, has a length of 167 ft., beam 30 ft., and with a draft of 17½ ft. has a displacement of about 1,253 tons.

Two ships of the Twilight class may be carried in the caisson that is large enough for the Warrior class.

The caisson for the Warrior may be 390 x 60 ft., by 35 feet total depth. The ship draws 26 ft. of water. Standing on a grade of one foot in a hundred, the caisson would be nearly four feet lower at one end than at the other. So we

across the swing-table, and about 600 feet beyond it, a *passing place* is provided. Fixed engines on the caisson-car, of which there would be four, would operate the gearing for moving the table with its load. An engine would be one of the fixtures of the swing-table itself, but would be calculated to do no more than move the table when without load. The engines on the caisson-car would also be used in handling the caisson-gates and in working capstans and other gear.

The caisson-gates would be hinged at bottom, and the upper half of each gate would be made to telescope into the lower half.

The caisson would be stiffened by gunwales and bilge-strakes.

Locomotives for moving the caisson would run on the rails connected in the sketch by ——. Gauge of tracks, five feet.

I estimate the weight of caisson and car:

	Tons.
Shell.....	550
Gates.....	250
Shores.....	1000
Beams under trusses.....	672
Transverse trusses.....	936
Bridging between trusses.....	400
Gunwale and bilge strakes.....	200
Chain plates and rivets.....	25
Engines and boilers for operating gates and capstans, shop, tools, capstans, etc.....	316
Wheels.....	837½
Axles.....	530 0-10
Saddles and boxes.....	160 8-10
Total caisson and car.....	5,877 9-10 tons of 2,000 lbs.
Add ship and load.....	0,000 "
Weight of water in caisson.....	3,446 "
Aggregate.....	18,324 tons;

and each wheel will have to carry 5,469 tons.

I estimate the cost of the caisson at £550,000.

On a gradient of 1 foot in 100 the resistance to traction would be about 550,000 lbs., and 22 locomotives of

100,000 lbs. each, all on drivers, would take the load along, on the gradient specified, at the rate of six miles per hour, with a sufficient reserve of power to overcome the adverse force of a wind moving at the rate of 45 miles per hour, which would exert a pressure of about ten pounds per square foot of opposed surface, and would be rated as a *gale*."

The locomotives would be placed ten in front and twelve behind. All would have steam driver-brakes, and some of the wheels of the caisson would be fitted with brakes to be operated by steam from the caisson-boilers.

To carry the 9,000 tons of freight moved in the caisson, allowing that each car would carry ten tons (net), 900 ordinary box-cars would be employed; these cars would weigh, say, 9,000 tons, so the cars and load would weigh 18,000 tons against the 18,824 tons of caisson, with its contained water and its load.

To haul the 900 loaded cars on a gradient of 1 in 100, at 10 miles per hour, 40 ordinary freight engines would be employed.

The 40 engines would cost, now, about.....	\$320,000
" 900 box cars " " " " .....	450,000
Total.....	\$770,000

The caisson would cost, as per estimate.....

" 22 heavy locomotives, about.....	220,000
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Total.....	\$770,000
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We could load our ship into its caisson, haul her the 46 miles across the Isthmus, and put her into the water again, inside of fifteen hours, with a train-crew not to exceed 60 men, all told; and this crew would do all the "terminal" work of loading and unloading. The train-crews employed to run the 900 railroad cars, on the road supposed to have gradients of 52.8 ft. per mile, would aggregate 200 men, who would do none of the work of loading and unloading.

The 40 railroad trains would make, in fifteen hours (at 10 miles per hour) an aggregate of 6,000 train-miles, and would accomplish work equal to carrying one ton of freight 1,350,000 miles.

The revenue from this haul would be, at one cent per ton per mile, \$18,500, and the net earnings, under favorable circumstances, would be \$5,400. The revenue of the ship railway company would be, at \$2 per ton, \$18,000 from the one train.

The ordinary (double-track) freight railroad of 150 miles in length might handle 9,000 tons of freight, each way on its line daily; but it is not probable that it would haul more than the 9,000 tons through in any one direction. But the ship railway may in fifteen hours take out of water at least five ships, and have four "trains" in transit at one time in each direction. But suppose that the ship railway carried only one 9,000-ton load each way in a day; it would earn, at rate named, \$36,000. The ordinary railroad, with 9,000 tons each way, would earn, at rate named, \$27,000.

Now the double-tracked railroad that can do the business named will have sidings equal in length to about 37 per cent. of the whole length of line; so it will have 355½ miles of single track altogether. If the whole road is laid with steel rail of 60 lbs. per yard, the rails will represent an outlay of about \$1,675,916. The ship railroad will require (as per sketch) 70 lbs. rail, equal to 287½ miles of double track, and to 575 miles of single track. This rail, at the price assumed in the case of the ordinary road, will cost \$3,162,500. The cost for rails, then, on the ordinary railroad is only about 53 per cent. of that shown for the ship railway. The extent of roadway and track to be maintained on the ordinary road is, however, about 62 per cent. of that shown for the ship railway. The gross revenue of the ordinary road is 75 per cent. of that of the ship railway in the case last assumed; its net earnings will be about 40 per cent. of its revenue.

Now, as compared with the same items on the ship railway, the engine-mileage on the ordinary railroad is six times as great, and the train-crew aggregate three and one-half times as great, while the cost of handling and billing freight, which on the ordinary road is the *largest* item in its expense account, is on the ship railway entirely included in the cost of train-crews.

If the area of track to be maintained on the ship-railway is considerably greater than on the ordinary road, the cost of maintenance, per mile of two-rail track, will be considerably less. The rate of speed on the ship road will be low, while the weight carried per wheel will be no greater than on the ordinary road.

The cost of maintenance and operation of the ship-road ought not to exceed 40 per cent. of its earnings. With 18,000 tons of freight per diem for 300 days in the year at the rate of \$2 per ton, the road will earn \$10,800,000 per annum, of which \$6,480,000 should be net; this sum is 10 per cent. on \$64,800,000, and the road, with all its appurtenances, need not cost that much. J. M. GOODWIN.

#### The Darien and Other Canals.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I am sorry to see a disposition on the part of some to judge of canal routes from a so-called national stand-point, rather than from either commercial or engineering data.

A portion of the lay press, as well as one engineering journal, hold up the fact that the Congress at Paris decided against the Nicaragua route as an insult to American engineers. Now, if any projects in the world have been reared without the aid of engineers, they are most of the inter-oceanic canal projects. It may be doubted if any engineer of prominence has ever been over the length of any of the projected canals.

The so-called "American" route via Nicaragua has no

appreciable advantage in commercial position over the Panama route, while its greater length, numerous locks and proximity to recent volcanoes would justify any engineer in making very careful surveys of both the Panama and the Tehuantepec routes, the one with its shorter canal route and possibility of either no locks or very few; the other with one end on the Gulf of Mexico.

A word might be said of the proposed President of this proposed American route. The *Nation* speaking of it says: "If this news all prove true, and we see no reason to doubt it, the country has good reason to congratulate itself;" or, in other words, a man too ready for politics, is the proper person to be at the head of an enterprise like this! Those who remember the case of Cluss, as Engineer of the District of Columbia, can judge of the Sylphs and Babcocks, the Shepherds and Belknap, who would crowd the halls of Congress for the proposed subsidy, and the lesser lights who would flock to Nicaragua for contracts. Of course, with such sponsors, they will count on a subsidy. No investor would put his money there, and it is doubtful if Congressmen would like to face their constituents after voting money to a project south of Yucatan, while we remain *too pure* to extend financial aid to railroads entirely within our boundaries. N.

#### Manuel Pesant's Portable Railroad.

The building of portable railroads is becoming quite an industry in this country. They are largely exported to the West Indies, where they greatly reduce the expenses of harvesting sugar-cane, enabling the planters to transport heavy loads of cane, quickly and cheaply, from the distant fields to the sugar mills. The rolling stock used consists of light, four-wheeled platform cars, weighing less than a ton, which are capable of carrying over a ton of load. They are usually hauled by animals, but lately locomotives of very light pattern are being introduced. A portion of the plantation road often consists of a fixed track, from which branches of portable tracks are carried to the middle of the cane-fields.

Fig. 1.

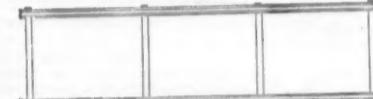


Fig. 2.

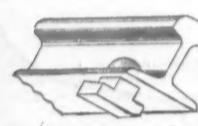
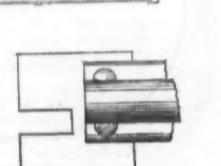


Fig. 3.



The weight of rails is 16 lbs. per yard, but occasionally patterns as light as 12 lbs. per yard are used. The portable track is made in sections 10 ft. long, so as to weigh no more than two men can lift.

The accompanying engraving represents one of the latest designs of this portable track—an invention of Mr. M. Pesant, who for many years has been engaged in selling American supplies to the Cuban planters.

The requirements of a good portable track for plantations, besides lightness and strength, are: Facility of effecting a joint between the sections; facility of disconnecting a section from a continuous line, if a switch has to be introduced in its place; possibility of making a curved line out of several straight sections. All these requirements are met by the track section illustrated. It consists, like all other plantation portable tracks, of two rails, connected transversely by iron bars of T section, with which they are riveted.

The section is represented in fig. 1. The flanges of the transverse bars, sinking into the soil, prevent longitudinal movement of the track. One end of the section has a transverse bar, wider than the other bars, which projects beyond the ends of the rails, so as to give a support for the rails of the following section. This bar has two slots to receive locking rivets. The slot is shown in plan on a larger scale, in fig. 2. The other end of each section has the transverse connecting bar placed at some distance from the ends of the rails, where the locking rivets are made fast to the foot of the rails, as shown in perspective view, fig. 2.

The joint is effected by simply placing the ends of the rails which carry the locking rivets on the slotted car of the following section, and pushing the sections toward each other. The necks of the locking rivets will enter the slots, and the joint is made. It will easily be understood that any side or vertical motion of one section independent of the other is prevented by the joint.

To disconnect two sections, it is only necessary to raise them at the joint a few inches from the ground, and the locking rivet will easily slip out from the slot, the upper surface of its foot being somewhat curved for this purpose. The slot is made sufficiently long to allow the two sections to be joined not only in a straight line, but also in a broken line, thus making it possible to describe curves with these straight sections. Curved sections of 15 ft. radius, and switches and crossings are also made with the same joints.

#### The New York Legislative Investigation of Railroad Practices.

The investigation by the Assembly Committee continued from Thursday, Aug. 28, to Tuesday, Sept. 2, when an adjournment was had.

Thursday, the examination of Mr. Wm. H. Vanderbilt was

resumed. He was questioned as to the Wagner Sleeping- and Parlor-Car Company. He said he believed it to consist of one or two hundred people. It was not incorporated. The car company paid the railroad company 20 per cent. of its gross earnings. The contract was made at his suggestion. He thought it paid. He held no stock in the Merchants' Dispatch. He believed that it paid no dividends for years, but put all its earnings into equipment. He had no stock in the Union Stock Yard and Market Company, which leases the New York Central stock yards in New York. He preferred the present plan of dividing stock shipments to the recent "evernor" plan. The Wescott Baggage Express has charge of all baggage from New York to Buffalo, and pays for handling it at terminal points. It is not paid anything by the railroad company. He did not think rates from Chicago to Liverpool were less than the combined rail rates to New York and steamer rates to Liverpool; he thought this had been so only when his road was competing with the Grand Trunk for this business about two years ago. He remembers the consolidation of the New York Central with the Hudson River road, but knew nothing of his own knowledge about the details. He did not think the property could be replaced for what it had cost. Being asked whether he should be permitted to charge more from Rochester to New York than his road's percentage on a haul from Chicago to New York, he said that he had been compelled by competition to haul freight from Chicago at a loss, and there was no reason why he should do the same from Rochester. If the road were not allowed to charge more on the local than on the through business, it would be obliged to give up the through business. When he was in Europe his road carried 1,000 car-loads of cattle at \$1 per car-load, and it had carried flour for 11 cents per 100 lbs., and out of that 11 cents paid 9 cents for lighterage. He thought a general law regulating transportation might be beneficial. On Friday Mr. Vanderbilt's examination was continued. Questioned concerning the oil business, he thought the Standard Oil Company's control of the business due to the shrewdness of the men in it as well as the amount of its capital. He believed the oil transportation to be lost to the railroads. He did not think the company could be put down by legislation. He did not think there were too many railroads in the West. He did not think the New York Central could carry four times as much if it had sufficient terminal facilities in New York, but it could do a great deal more. He never knew a railroad to have equipment enough to carry all that was offered when there was the greatest rush of business. He thought the railroads had done their share toward the commercial prosperity of the city and state of New York. He was in favor of a national law to punish railroads for going above certain maximum rates or below certain minimum rates.

Mr. E. G. Patterson, who had charge last winter of prosecution in Pennsylvania by the outside oil men of the Standard Oil Company and its allied interests, gave some account of the method of conducting the oil business, of the proposed combination under the "South Improvement Company," and the "Crude Scheme," which charged the same for carrying crude oil to Pittsburgh or Cleveland and the oil refined from it thence to New York as for carrying crude from the wells to New York, thus putting the Cleveland and Pittsburgh refineries, which were mostly owned by the Standard Oil Company, on an equal footing with New York refineries for New York and export business. The same scheme gave a rebate of 22½ cents per barrel on oil from the United Pipe Lines. This drove four-fifths of the pipe lines into the United Pipe Lines Company. The freight from the wells to New York was \$1.44½ to outside shippers in 1878; but Mr. Cassatt had testified that it was 80 cents to the Standard Oil Company at the same time. The Standard Oil Company of Pittsburgh and Cleveland, Pratt & Co., the Acme Oil Co., Bostwick & Co., the Imperial Oil Co. of Oil City, the Atlantic Refining Co. of Philadelphia, the Camden Oil Co. of Maryland and the Devon Manufacturing Co. compose what is known as the Standard Oil Company. It was generally understood that the New York Central owned one-third of the United Pipe Lines stock. He thought the Tidewater Pipe Line would not have been built if the railroads had treated all shippers alike.

Mr. Dutcher, Live-Stock Agent of the New York Central, testified that he had charge of live-stock traffic on that road; was General Superintendent of the Buffalo Union Stock-Yards and President of the New York Union Stock-Yard and Market Co. The company was organized about 1878 for the purpose of providing a market for stock coming to New York by all roads. Asked to tell what dividends the latter company paid, he objected; and the committee decided that it would be sufficient for it to make a private examination of the stock books.

Saturday Mr. Dutcher's testimony was continued. The Union Stock Yards were established after the other railroads had yards. The capital stock was \$200,000, all of which was paid in cash. The various yards had united to pool the yardages, and the cattle were sent by either road to any yard the shipper might prefer. The rates were 45 cents per head for cattle, 10 cents for calves, 8 for hogs, and 5 for sheep, with \$2 per 100 lbs. for hay consumed, and \$1.50 for corn. It was at his suggestion that the evernor system was broken up. It was introduced about the time the Grand Trunk was making a great effort, with much success, to control the cattle export business. For a long time it was effective.

Mr. Stein, a special accountant of the Erie Railway Company, who was specially detailed to investigate Jay Gould's contracts with the company, testified that he made a report of the moneys received by Gould from the company to Mr. Little, the present Auditor. They amounted to \$12,000,000 or \$13,000,000. Most of the questionable transactions were with Smith, Gould, Martin & Co.

Col. Geo. T. Balch was called Monday and testified as to manner of taking the inventory of the property of the Erie Company and of estimating its value.

Mr. Stephen Little, Auditor of the Erie, testified as to some accounts with the Bischoffsheim & Goldschmidt and advances made to James McHenry. He was questioned at length as to what he considered "floating debt." He thought that what the form of report established by the New York statute meant by that term did not include traffic balances, and current debts for supplies and wages. He included in the report to the State Engineer and Surveyor what the New York Central, the Lake Shore and other roads had included. This left out several millions of the obligations of the company which he put in his balance sheet. He thought the state report ought to contain a balance sheet, which would enable every one to know what the indebtedness was. He considered the whole form of the State Engineer's report as defective from first to last, and it was so understood by every railroad in the country. He would have such a report contain a profit and loss account and a condensed balance sheet. He thought the Massachusetts Commissioners' reports defective in some respects, but yet the best state reports he had seen.

At the close of this session Messrs. Baker, Law and Wadsworth were appointed a sub-committee to sit in Rochester and Elmira and receive testimony; Messrs. Hepburn, Husted, Law, Grady, and Baker were appointed a sub-committee

to receive testimony in Buffalo; Messrs. Terry, Husted and Noyes were appointed to investigate the management of the Delaware & Hudson Canal Company; and Messrs. Hepburn, Duguid and Noyes were appointed to examine the books of the Union Stock-Yard and Market Company, the New York Central Sleeping Car Company, the Wagner Drawing-Room Car Company, and to investigate the management of the Utica & Black River Railroad Company.

Tuesday last Mr. Little's examination was continued. He was asked concerning allowances made by the Erie Company to James McHenry for payments made for proxies. He thought they were not allowed. He was requested to produce the accounts of McHenry and of Smith, who was formerly secretary of the Erie London office, at a subsequent meeting. He thought that between \$5,000,000 and \$6,000,000 of the stocks and bonds recovered from Jay Gould were charged to "reclamation account," to which items considered worthless were charged.

Mr. Depew, counsel of the New York Central, presented the following exhibit of the through and local freight earnings of that road, previously called for by the committee:

Statement of Freight Earnings for Fiscal Year Ending Sept. 30, 1878, divided as follows:	
Through, between New York station and East Buffalo, Buffalo, Black Rock and the bridge	\$10,145,197.39
Less overcharges	1,603,803.97
Total	\$8,541,393.42
Local and expresses	\$11,012,228.85
Less overcharges	507,792.56
Total	10,504,436.29
Net total	\$10,045,829.71
Gross receipts	21,157,426.24
Total overcharges	2,111,596.53
Net receipts	\$10,045,829.71

At 11:30 the committee adjourned. The sub-committee will meet in Rochester on Sept. 10, and in Buffalo on the Monday or Tuesday following. The investigation is to be continued hereafter in New York.

#### Southern Railway & Steamship Association.

Pursuant to adjournment, the convention of this Association assembled at the Greenbrier White Sulphur Springs, W. Va., Aug. 18. There were present the following representatives:

Western & Atlantic—Hon. Joseph E. Brown, President; Wm. McRae, General Manager; R. A. Anderson, General Freight Agent.

Central Railroad & Banking Company, Ocean Steamship Company, Savannah, Griffin & North Alabama, Southwestern Railroad, Mobile & Girard and Montgomery & Eufaula—Wm. Rogers, General Superintendent Central Railroad; W. G. Raoul, Superintendent Southwestern Railroad and General Superintendent of Montgomery & Eufaula Railroad; George Yonge, Agent Ocean Steamship Company.

Philadelphia & Southern Mail Steamship Company—W. L. James, General Agent.

Merchants' & Miners' Transportation Company—Geo. J. Appold, President; V. D. Groner, Agent, Norfolk; E. H. Rockwell, Agent, Providence; Wm. Plummer, Agent, Baltimore.

Atlantic & Gulf—H. S. Haines, General Superintendent; James L. Taylor, General Freight Agent; C. D. Owens, General Agent.

Macon & Brunswick Railroad—Geo. W. Adams, General Superintendent.

Brunswick & Albany Railroad—Chas. L. Schlatter, Chief Engineer and General Superintendent.

Mallory Lines of Steamships, New York to Port Royal and Brunswick—H. R. Mallory.

Georgia Railroad & Banking Company—E. P. Alexander, President; R. Dorsey, General Freight Agent.

South Carolina Railroad—J. B. Peck, General Superintendent; S. B. Pickens, General Freight Agent.

New York & Charleston Steamship Company—George W. Quintard, President.

New York & South Carolina Steamship Company—T. G. Eger, General Freight Agent.

Philadelphia & Charleston Steamship Line—D. D. C. Mink, General Freight Agent.

Merchants' Steamship Company—E. Fitzgerald, Agent.

Savannah & Charleston—S. D. Boylston, General Freight Agent.

Port Royal & Augusta—R. G. Fleming, General Superintendent; J. S. Davant, General Freight Agent.

Charlottesville, Columbia & Augusta—J. B. Palmer, President; A. S. Buford, Vice-President; T. M. R. Talcott, General Superintendent; Sol Haas, General Freight Agent; D. Cardwell, Assistant General Freight Agent.

Wilmington, Columbia & Augusta and Wilmington & Weldon—Hon. R. R. Bridgers, President; J. F. Divine, General Superintendent; A. Pope, General Freight Agent; B. F. Newcomer, Director Wilmington & Weldon Railroad Company.

Seaboard & Roanoke, Raleigh & Gaston, Raleigh & Augusta Air-Line, and Baltimore Steam Packet Company—Jno. M. Robinson, President; J. C. Winder, General Superintendent; R. B. Cooke, Assistant General Freight Agent; Baltimore Steam Packet Company; O. V. Smith, Forwarding Agent Seaboard & Roanoke Railroad.

Canton Line—John S. Wilson, General Agent.

Richmond & Danville—A. S. Buford, President; T. M. R. Talcott, General Superintendent; Sol Haas, General Freight Agent.

Atlanta & Charlotte Air Line—G. J. Foreacre, General Manager; R. D. Carpenter, General Freight Agent.

Northeastern, of Georgia—J. M. Edwards, Superintendent; C. G. Talmage, Director.

Old Dominion Steamship Company—W. H. Stanford Secretary and General Freight Agent.

Philadelphia & Clyde Line Steamships to Norfolk, Portsmouth and West Point—D. D. C. Mink, General Freight Agent, and J. W. McCarrick, Agent, Norfolk.

Baltimore & West Point Steamship Line—G. F. Needham, General Freight Agent.

Caroline Central—C. H. Roberts, Receiver, and F. W. Clark, General Freight Agent.

New York & Wilmington Steamship Line—T. G. Eger, General Freight Agent.

Louisville & Nashville and South & North Alabama—E. B. Stahman, General Freight Agent.

Nashville, Chattanooga & St. Louis—E. W. Cole, President, Geo. R. Knox, General Freight Agent, and W. McPherson, General Southern Agent.

East Tennessee, Virginia & Georgia—C. M. McGhee, Vice-President; J. F. O'Brien, General Superintendent; James R. Ogden, General Freight Agent, and T. S. Davant, Assistant General Freight Agent.

Atlantic, Mississippi & Ohio—Henry Fink, Receiver.

Atlanta & West Point—L. P. Grant, Superintendent.

Western, of Alabama—Cecil Gabbett, General Manager.

Rome Railroad—Eben Hillyer, President.

Cheapeake & Ohio—Wms. C. Wickham, Vice-President; W. M. S. Dunn, General Superintendent; B. S. Fitch, General Freight Agent; N. M. Johnson, Agent, Cincinnati.

Virginia Midland—J. S. Barbour, Receiver; F. T. Hawks, General Freight Agent.

Florida Central—W. M. Davidson, Superintendent and General Freight Agent.

Selma, Rome & Dalton—N. Webb, Superintendent; Ray Knight, General Freight Agent; J. M. Wyly, Agent.

Cherokee Railroad—John Postell, Superintendent.

Alabama Great Southern—C. P. Ball, General Superintendent.

Second. Resolution as to duration of allotments:

*Resolved*, The duration of all allotments of business shall be to the end of the current Association year, and thereafter until a new allotment is made.

Third. Principles upon which divisions of business are to be made:

The committee appointed to present business to the consideration of the Convention report as follows:

*Whereas*, It is deemed advisable that the Association should define as nearly as practicable, the principles upon which divisions of business are to be made, whether by agreement between the representatives of lines interested by the General Commissioner, or by arbitration; therefore be it

*Resolved*, 1. That tonnage carried by any line in excess of allotted proportions, gives such line no right in itself to claim an increased allotment, nor shall difference in insurance, nor the cost of transportation be considered in making allotments.

2. That the allotments to weak lines, or such as cannot secure business at equal rates with other lines, should be arbitrary and as small as will compensate such lines for maintaining rates.

3. That the other lines should divide the remaining business, taking into consideration the relative facilities afforded by each respectively to shippers, such as:

1st. The average time required to transport goods or the frequency of communication, as well as the actual time of transit.

2d. The number and length of transfer and facilities therefor.

3d. The facilities for receiving and delivering freight at both termini.

4th. Deficiency in equipment.

But the foregoing enumeration shall not exclude the consideration of circumstances peculiar to any one or more cases.

Fifth. Report upon resolutions in reference to insurance.

The committee to whom was referred the resolution on insurance, beg leave to report they have not, in the limited time allowed, been able to give the matter the mature deliberation necessary, and would therefore recommend that no insured bills of lading shall be issued before the next annual meeting, and that the President of the Convention appoint a committee of seven, of which he shall be one, and Chairman, to take the subject into consideration and report at the ensuing annual meeting.

On motion, the Secretary was directed to insert the amendments proposed above to Article 22 of the agreement and the notice to change Rule 11 in the call for the annual convention, giving notice that the same would be taken up for action at said convention.

The section of report giving principles upon which divisions of business are to be made was taken up. It was adopted after amendment by substituting the words "specific and to such extent" for "arbitrary and as small" in second section.

The report on the resolution in reference to insurance and a substitute for the same offered by Mr. Rogers were both laid upon the table.

The following resolution was unanimously adopted:

*Resolved*, That a committee of five, to be selected by the President of this Association, be appointed, whose duties shall be to advise with and assist the General Commissioner in the settlement of all important and controverted questions arising in carrying out the regulations of the Association, and such measures as are, from time to time, adopted or authorized by the Association in Convention. And also that said committee be charged with the duty of thoroughly examining into the methods used in the office of the General Commissioner for keeping and reporting the accounts as therein required, and that they report to a subsequent meeting of the Association the results of such examination, with such recommendations on the subject as they shall deem necessary or useful for conducting the office work of the Association, and the aid of the General Commissioner in controlling and regulating the same.

The President announced Messrs. Buford, Cole, Alexander, Raoul and Stanford as the committee to advise with the General Commissioner, etc.

A resolution recommending the pooling of freights from Charleston and Savannah to Augusta and all competitive points in the interior, was laid on the table.

After settling routine business as to compensation for place of meeting, etc., the Convention adjourned *sine die*.

#### A Traveling Desk.

A new contrivance known as the Kaplan satchel-desk, which appears to be extremely convenient for traveling agents and other persons whose business requires them to travel much, presents the outward appearance of an ordinary 16-inch satchel or valise. Inside, one-half of it is an open space in which clothing can be packed; the other half is a complete desk with a drawer for inksstands and pens; a drawer for pencils, stamps, etc.; drawers for stationery and envelopes; pigeon holes for letters, etc., and a writing board or flap of convenient size. The desk part will carry a supply of stationery for quite a long journey and leave room for a fair supply of clothing. It is manufactured and sold by the Kaplan Satchel-Desk Co. of No. 115 West Fourth street, Cincinnati.

#### A Troublesome Hole.

The other day in a conversation with Patrick Kane, the principal foreman of the track hands on the Belt road, a *Neess* reporter learned that the very heavy fill at the east end of the long pile-work which forms the eastern approach to the lower Belt bridge, was constantly sinking into the swamp, and that it had been raised from six to eight feet since the track had been laid down two years ago. The piles west of this sinking bank have sunk a few inches too. One development of this subsidence is worthy the attention of our "savans" if we have any. The eastern end of the pile-work is filled in with dirt for some 40 or 50 feet, to serve as sort of abutment. This filling not only sinks into the swamp but drifts to the south so that the track has been shifted more than once northward on the caps of the piles to preserve the line of the rails. The extreme eastern row of piles has been forced by this strange earth-drift so violently southward that the southernmost pile has broken loose from the track altogether, and stands off at a large angle in the bank. The power of this pressure will be better appreciated when it is understood that the piles and the caps are bolted together by large drift-bolts, that enter two feet into the tops of the piles. The southward motion was powerful enough to break this bolt and force the pile clear out from under the track. What is this mysterious but vigorous motion? The filling of dirt as it sinks into the swamp bulges the surface up till in some places it is several feet higher at the foot of the bank than it is 20 or 30 feet away. Albert Scott, Superintendent of Transportation of the Belt road, thinks the company will fill in the whole length of this pile work, about 1,000 feet, before long.—*In dianapolis News.*

After the opening of the session, the General Committee presented the following report:

First—Proposed amendment to Article 22 of agreement:

The following amendment of the agreement is respectfully recommended by your committee. Article 22 to be amended to read as follows:

If any member of the Association does not approve of the decision of the General Commissioner, made under authority of Articles 16 and 17, it may appeal from such decision and require an arbitration of the question by a disinterested party or parties, not to exceed three in number, two of whom are to be agreed upon between the several members interested in the question, and the third to be selected by these two in case they cannot agree, the decision of such arbitrators, or a majority thereof, to be final and conclusive.

If the parties cannot agree upon the arbitrators, the General Commissioner shall have authority to appoint two of them, which two will appoint the third if they cannot agree.



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## EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed to EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

## THE DEVELOPMENT OF LOCAL TRAFFIC.

One of the commonest charges against railroads is that they sacrifice their local traffic to meet the exigencies of the through business, and that the local traffic has been subject to exorbitant charges to make good alleged losses resulting from the low rates on through business that have been prevalent for the last few years.

Whether this charge, which has been pressed by the public with such great energy and so emphatically denied by the railroad companies, be true or not is not our purpose to discuss; but, rather, to inquire if, generally speaking, the local business has had the attention and fostering care that it undoubtedly deserves, and whether it has not been made subordinate to the demands of the through freight and passenger traffic on this point particularly.

When we consider with what restless and untiring zeal almost every road that by any stretch of enthusiastic fancy can become part of a through line is looking after and endeavoring to secure any business that can be induced to pass over its line; how it fights for a portion of the passenger business by special agents, flaming posters and extensive advertising; how, at least as far as the freight business is concerned, distance is annihilated and traffic diverted from the most direct routes to pass over long and roundabout ways; when we consider what stupendous efforts are made by many roads to secure business on which, owing to the lowness of the through rate and the shortness of their haul, their proportion of the receipts (saying nothing about their share of the profits) must be infinitesimal, and even that further reduced by amounts refunded as their proportion of drawbacks, rebates and line expenses; when we consider all this energetic and wide-awake action in relation to through business, and are requested to point out a parallel in management of local business, we are sorely puzzled, and have to say with Cuffee that "we guv it up."

That to divert traffic from other routes, or to get "new business," as it is generally termed, is worth making great efforts, if any margin of profit is in it, and that the actual extra cost of carrying this class of business is comparatively small must be conceded as beyond question; but if while endeavoring to secure this business the managers have overlooked, as sometimes occurs, local interests that by proper attention and timely assistance might have been developed into important and profitable business, then their policy has been a poor one.

"But," says General Manager Brown, "we are now getting all the local trade along our road. The business is our own, and as there is no competition it requires no special attention or care. And why should we not get all the through traffic we can?" As long as there is any profit in it, get all the through business you can, Manager Brown. No one can take any exception to that. The profits are what the dividends come from, and that is what the stockholders are looking for.

But, then, you say that the local business is your own. That cannot be said of the through business; as you may have a large amount of that to-day, and to-morrow, by undercutting, some competitor may take the greater proportion away from you, and your only hope to regain any of it will be by fighting fire with fire and underbidding your competitors, while at every cut the profits in the business will be materially diminished and become beautifully less. If the local business is your own and free from competition, it is likely to be a permanent one, and is not this an inducement to increase its volume as much as circumstances will permit?

Every locality has some special advantages, which, by development, could be made profitable to the inhabitants of that locality and to the railroad that gives it an outlet. That these special advantages in many instances have not been utilized to any very great degree is apparent to the most casual observer.

For instance, while Manager Brown is defending his enterprise and eagerness in the matter of through traffic, he has almost entirely overlooked the fact that along the line of his road is some of the best water-power to be found in the country; and, if our good friend would only apply some portion of his abundant energy, shrewd management and winning powers of persuasion to the object of calling the attention of capitalists to the great advantages of these water privileges that have heretofore been comparatively unknown, and by every means in his power endeavor to induce them to utilize them, he would be very likely to secure a trade for his road that might possibly equal in magnitude, and would certainly exceed in proportion of profit, the through trade, over the acquisition of which he seems to be so greatly elated. Again, if the capitalists could be induced to establish manufactories along the line, the utilizing of these water powers would bring increased population, for a large portion of the operatives would have to be brought from some other locality; and to supply the wants of the increased population would, of necessity, bring increased business to the road.

It may be claimed that this is easier said than done, and that there must be something exceedingly alluring to induce the investment of capital in any new enterprise of this kind. Well, it is only a matter of business; just the same as was that large contract that was made to carry grain from Green City to Slowton, 900 miles, of which, Manager Brown, your haul was only 56 miles.

To make that contract specially inviting to Messrs. Smith & Jones, a cut of 5 cents per 100 lbs. was made on the low rate that then existed. It certainly looked like business to see such large trains go over your road, but when you had paid for car-service and settled for the half-dozen cars that were ditched one night, you had rather a hard time to tell just exactly where the profits came in.

The attempt to induce capitalists to take advantage of your water-powers could hardly be more hazardous than the above. If they didn't come, nothing would be lost; and if they did, an important source of revenue would be created. It may be said that all roads are not supplied with water-powers. That may be; but if they do not have that, they probably have some other specialty, of which, if properly attended, considerably more could be made than has been done heretofore. It may be valuable quarries or extensive timber lands for which a good market could be found, and a tolerably fair rate of freight could be obtained if properly encouraged and stimulated by the active cooperation of the railroad company. The quarries have not been opened or the timber cut for the reason that the road has never made any special exertions to build up the trade.

It was local business for which there was no other outlet, and on which, consequently, a good, stiff local

rate could be obtained; and though a few car-loads had been shipped from time to time, the results had been disheartening to the shippers, for though they had stone and timber in abundance and which they could get out as cheaply as any one, they found they could not compete in a common market. And why could they not compete? Simply because the railroad had looked upon these shipments as their own trade for which no other outlet was open, and which could be made to pay full local rates; in other words, here is an instance where the railroad managers have been so entirely occupied with their plans for securing as much through business as possible that they have virtually strangled an enterprise that was their own, and which, if it had received from them the due share of encouragement to which its importance entitled it, could have been permanently established and would have become a very important source of revenue.

Again, if the country through which a road runs be an agricultural one, a true understanding of the duties of the managers of that road would clearly demonstrate that it would be to their interest to study with care the needs of the community depending on their road for means of transportation and endeavor to obtain the most thorough information in regard to what branches of agriculture that country is the best adapted; to find out where the most available and best markets are, and from the culture of what particular articles the greatest profits may be derived. When they have accurate data in relation to these points, about all that will be necessary is to secure the hearty co-operation of the most influential and public-spirited farmers in the different townships along the line, and gradually, but not necessarily slowly, the majority of the farmers will be induced to adopt the especial branches of agriculture that may be decided to be preferable, and for which that country may be the best adapted. The majority of mankind being like sheep, prone to follow the leader, the mere fact that any particular branch of agriculture is advocated by the most successful farmers will be sufficient to attract many supporters to the proposed change.

Should there be any large towns on the road, it is not only the duty of the road, but to its interest, to see that manufacturers located there be encouraged as far as the matter of rates and facilities for transportation will permit; that the merchants be aided in extending the territory for which they furnish supplies to its greatest limits, so far as possible without destroying other business of the road; and that, though the towns may not be competitive points, their business interests be not permitted to languish or be destroyed through any arbitrary or injudicious policy of the road.

The local passenger traffic is, to a very considerable extent, dependent on the general prosperity of that section of the country, and on the amount of freight traffic; consequently, if the general prosperity along a road becomes greater, people have more money to spend on methods of enjoyment, of which traveling for pleasure is no unimportant factor; and if the freight business be increased, it naturally causes an increase of passenger travel for business purposes. Then, again, the country may have so salubrious and healthy a climate, or be of that romantic type of scenery which attracts summer tourists, and able to compare favorably with the noted resorts of other lands.

In this case, by thorough and extensive advertising, by extra facilities, by inducing the building of summer boarding-houses, and by many other methods, a valuable summer travel might be built up, which, if properly treated, would be likely to increase from year to year.

Something might be said about the revenue that might be derived by the organizing of cheap and popular excursions to the many different points of attraction that can be found in almost every section; but that question was so elaborately and ably presented to the readers of the *Railroad Gazette* by Mr. Lee, a few weeks ago, that any discussion of that point is, probably, needless.

The great importance of the through traffic cannot be denied, and it is not our purpose to criticize in any manner the policy that has been adopted by the trunk lines in relation to it; still, it cannot be denied that a large number of the minor roads have been affected by a species of through-traffic craze, and have devoted much attention to it that could have been much more profitably applied to the improvement and development of their local business.

And it may be safe to doubt whether, at the low rates that have been the rule on through freight and passenger traffic for the last few years, there has been any profit in the business to them, when due consideration is given to the really small amount of the business that they have secured, the meagreness of their proportion of the through rate, the shortness of the haul, and the fact that the cost of transportation is,

proportionately, far greater on their road than on the trunk lines.

Probably the many misunderstandings that arise from time to time between the railroad corporations and the public are principally the result of the distance that seems to have grown between them, from a belief that is frequently held on both sides that their interests are antagonistic. The corporations, in many cases, appear to have no individuality, and are looked upon by the public as a necessary evil, which is an out-growth of the needs of transportation; on the other hand, many railroad managers look upon the public as insatiable, and for whom nothing can be done which would meet their hearty approval, and which would be considered a liberal policy by the public.

On through business this is not of so much importance, for it is a matter of competition, and if either party has undue power it is the shipper; and, if the competition is lively, he can virtually dictate terms.

But to encourage the growth of local traffic it is extremely desirable that this barrier of prejudice that often exists between the road and its patrons be entirely destroyed.

This can only be done by demonstrating clearly that the corporation fully appreciates that its own successful operation is closely allied with the fortunes of the community with which it is identified, by meeting its patrons on a common footing, and by evincing a desire to do all in its power to develop the natural resources of its territory, and promote the growth of all industries in any wise depending upon it.

By adopting a liberal policy like the above, many roads would find that their business would be very materially and permanently increased, and that it would be but the commencement of an era of successful operation to which they had formerly been strangers.

#### THE ROAD-MASTERS' CONVENTION.

Announcements have been published in preceding numbers of the *Railroad Gazette* of the time, place, etc., of the meeting of the "International Road-Masters' Association." It may be well to repeat this by saying that the meeting will be held at the International Hotel, at Niagara Falls, on Wednesday, Sept. 10. The Secretary has announced that all road-masters and their assistants are invited to attend. When the importance of the duties of road-masters is considered, and the variety of subjects which are involved in the performance of them, it is a little surprising that an association of those in charge of the permanent way has not been organized long before. It is true that the American Society of Civil Engineers has taken up some of the subjects in which road-masters are interested, but generally at its annual convention so much of the time is devoted to social enjoyment that there is no opportunity to give much consideration to the practical subjects which come under the immediate daily supervision of road-masters. In fact, too many engineers have only a limited knowledge of the practical duties of road-masters. It is therefore very desirable to bring together those men on whom the immediate care of the condition of our railroad tracks rests, in order to hear their views of subjects with which they have a more intimate acquaintance than any one else.

There exists, we know, among some railroad officers, a considerable amount of feeling which is opposed to the holding of meetings of their subordinates. This is due to various causes, to some misconceptions, and, we believe, to some very erroneous reasoning. Quite a dissertation might be written on this subject, but only one branch of it will be referred to now. Quite a number of railroad officers refuse to countenance the meetings of the road-masters, master-mechanics, car-builders, etc., because the latter do not come up to some imaginary standard which the objectors have conceived in their own minds such meetings should conform to. There is, undoubtedly, much and very just ground for finding fault. It requires a considerable amount of patience, and some endurance, to attend a meeting of this kind, or, in fact, any other. The average intelligence of almost any class of men is always surprisingly low. The mental dullness, the wrong-headedness, the absence of the capacity of thinking in any sort of logical sequence, and, more and worse than all, the profuse, tedious, illimitable windbags—who run to words when the opportunity is given them, just as a garden will run to weeds if they are not exterminated—are apt to drive away from such gatherings persons without the gift of patience or tolerance. Unfortunately, it is impossible to bring people together without encountering these evils, which must be borne as best they can be. If an association is formed, it will always embrace a certain number of stupid people. If a society of master-mechanics, road-masters or any other class of railroad men is formed, it must, however, be of the men who now fill such positions, who are of almost every degree of intelli-

gence and—tiresomeness. We are obliged to work with the timber which is supplied to us, and to make the best use of it possible. It seems unreasonable, therefore, to refuse to have anything to do with an association because it is not exactly what we think it should be. It is very much wiser to make the best use we can of the more or less imperfect organizations as they are or can be.

The Road-Masters' Association is not yet old enough to have developed the most effective way of doing its work. This depends so much upon the character, habits and training of the members that no plan can be prescribed with any certainty that it will be the best. At the meetings of the Society of Civil Engineers, for example, the proceedings consist chiefly of papers which are written and read by members and are afterward discussed. When this method is employed, the members must, however, have a certain familiarity with the use of the pen, and be accustomed to express their ideas in writing. At the master-mechanics' and car-builders' meetings, on the other hand, this method has been employed to only a very limited extent; and the plan of appointing special committees to investigate and report on certain subjects has been employed ever since their organization. Generally it has worked very well, although of late it has fallen into a sort of routine and has resulted in some very dry, stale and unprofitable reports. Both of these associations have adopted the plan of devoting a certain portion of time to the discussion of questions presented by the members. The results have at times been very good, and have had the effect of calling out discussion on subjects which could hardly have been presented in any other way, and of unsealing the lips of those who are usually silent. It is a very common plan in scientific associations to appoint a committee to prepare subjects and with authority to write and notify members that they will be called upon to open the discussion of them. Probably all of these methods could be combined. The difficulty with men "unaccustomed to public speaking" is to induce them to talk on any subject. To do this, the meeting must be as informal as possible, consistent with the necessity of keeping it within its proper and definite channel for transacting business.

Of subjects for profitable discussion by the road-masters there can certainly be no lack. A glance over the index to Huntington's Road-Master's Assistant, for example, is sufficient to whet the appetite of the editor of a railroad newspaper for asking questions. Perhaps he could not render a better service to the road-masters than to present to them the topics he would like to present, and which it would be proper for them to discuss, or throw some light on, at their meeting. We will begin at the foundation, and propose first what we will call the

#### SUB-WAY.

that is the embankments and cuts on or in which the ballast is laid; the best way of preventing washing of the slopes, and of holding material which becomes semi-fluid when wet; the preparation of the sub-way to receive the ballast; the making of a foundation or of supporting the sub-way on marshy ground; filling in trestle work, when economical; the inspection of the track during severe storms and the precautions which should be taken.

#### BALLAST.

The relative cost and value of different kinds; its preparation and application; the most economical depth for it.

#### CROSS-TIES.

The value and durability of different kinds of timber; the effect and value of different preservative processes; the most desirable length and size; iron cross or longitudinal ties, their cost and efficiency.

#### SPIKES.

The best size and shape for a given pattern of rail.

#### RAILS.

The best shape of section and method of manufacture; the effect of different kinds of traffic on the wear of rails under different circumstances, such as fast and slow trains, on grades where the trains all run in only one direction, on bridges, in yards, at crossings, etc.; the most economical length and weight of rails; their gauge and elevation on curves, etc.

#### RAIL-JOINTS.

The most economical form of joint; the relative merits of the ordinary pattern and angle fish-plates; the shape of the rail considered in relation to its capacity for holding fish-plates; the merits of suspended and supported joints; nut-locks, their merits and patterns; fish-bolts, the best shape of head and the form of thread.

#### FROGS AND CROSSINGS.

The most economical form and the sizes which should be used; the width of throat and span which

should be allowed between the guard and main rails; the durability of frogs.

#### SWITCHES.

Merits of different kinds; the effect of a broken and unbroken track; the value and security of so-called "safety" features in different kinds; the proper curvation for a turn-out or cross-over under different circumstances; the danger of running toward the points of split switches; the methods of fastening switch-rods, different kinds of head-blocks, etc.; switch-stands and signals; the possibility of adopting some standard form for the latter; interlocking apparatus for junctions, crossings, etc.; the necessity for distance signals at dangerous points.

#### BRIDGES.

Their inspection and the chief sources of danger; the preservation of wooden and iron bridges from rust and decay; how to discover decay; the requisite lateral bracing, especially for pony trusses; the foundations of bridges and their protection from injury by freshets, and the best way of discovering it when it occurs; guard-rails and guard-timbers, the best way to lay them.

#### TRESTLES.

Their design and maintenance.

#### HAND-CARS.

The best form and method of operating.

#### TOOLS.

Track-tools, such as hammers, gauges, claw, tamping and lining-bars, track-drills, rail-bender, etc.—the relative merits of different patterns, sizes, etc.

This list of topics is not intended to be at all exhaustive, but merely to indicate the range of subjects to which discussion might be directed. If the meeting should have no other result than simply to lead road-masters to give their experience and practice from year to year in relation to many of these topics, it would be a sufficient reason for its organization, and would amply repay all who attend, and would certainly be of very great benefit to the railroad companies whose employees take part in the meetings.

#### NEW YORK RAILROADS IN 1877-78.

The report on railroads of the New York State Engineer and Surveyor for the year ending Sept. 30, 1878, reaches us this year Sept. 1, two weeks later than last year, but rather earlier than usual. The year covered by the report, therefore, is eleven months past when the report is made accessible to the public. The State Engineer and Surveyor, however, submitted the report to the Legislature Feb. 28; the concurrent resolution directing the printing of the documents passed the Assembly April 30 and the Senate May 2, so that for four months of the delay, apparently, we must hold the legislative printer responsible. It is a volume of more than thousand pages, and not to be corrected or manufactured in a day; but its bulk is a fault as well as the delay, for it could be made a good deal clearer in one-fifth of the space, though, perhaps, there can be no change made in the method of presenting the company reports so long as the law remains as it now is.

There are at last signs that the State Engineer and Surveyor has been taking the responsibility of editing this report, which usually, until very recently, appears to have been thrown together, accepting whatever the companies handed in, without question or criticism, and so adopting enormous blunders and misstatements, made by the carelessness of the railroad men, by their misunderstanding of the requirements of the form of report, or their disposition to do this work in the easiest way. Some signs of this greater care in making up the reports of recent years we have noticed heretofore. This year there is more of an introduction, in which the officer (Mr. Seymour, the State Engineer and Surveyor, expressly credits his deputy, Mr. E. D. Smalley, with the preparation of the report) calls attention to changes and improvements made, and incidentally to the defects of previous reports. A full list of all the railroad corporations formed under the laws of the state is given, showing location, reorganizations, consolidations, and present status; some companies which had existed for some time without reporting have been discovered, as it were, and placed in the list: one of these has had its road in operation for 28 years, and now reports for the first time!

The list of railroad companies that have been incorporated in the State is a valuable addition to the report, especially as the existing status of the corporation is given with its name; whether "extinct," "in operation," "leased," "consolidated," etc. There are in this list the names of 873 different corporations, 254 of which are now extinct, while 30 are classed as being "abandoned" (some of these had some work done), and 17, "project abandoned," 7 were "dissolved," and 77 are reported as "not in operation;" but it must not be

inferred that all these corporations have had completed railroad, or if so, that it now lies idle. Most of them are corporations that have been organized since 1872, and many have more or less graded road-bed, but some seem never to have had any railroad property whatever.

The State Engineer complains that of the 286 railroad companies reporting for the year ending Sept. 30, 1878, no less than 110 had not sent in their reports by the time required by law—Dec. 1. Sixteen did not report until January, and two waited till February. The one which was latest (reporting Feb. 10) has only a mile of road. There is a penalty of \$250 and of \$25 for every day of delay for failure to report by Dec. 1, but there was probably never before any show of enforcing the penalty. This last year Mr. Seymour went so far as to send a list of the delinquents to the Attorney General. The matter seems to have ended here, the intention probably being to intimate that the companies must do better next time. The officer says: "The tardiness on the part of the different railroad corporations in reporting, and the imperfections in their reports, so embarrass and delay the compiling of the tables, that I respectfully recommend the prosecution of all companies who have not complied with the requirements of the law." Certainly if the time granted is reasonable, the companies ought to make their reports within it; and if it is not reasonable, it ought to be extended. Two months, it seems to us is long enough. But it must be said that, if the publication of the report is to be delayed for several months after it is prepared, it does not much matter if the companies are late. If the report can be distributed as early as February, we venture to say that it will be consulted ten times as much as it now is; but between the first of September and the first of July there is not so much choice.

The following is a summary of the reports of the New York railroad system for two years:

	1877-78.	1876-77.
Miles of road built.	8,390.73	8,131.41
Miles in operation.	8,306.31	
Miles in New York.	5,752.24	5,594.80
Second track and sidings.	4,358.39	4,171.50
Miles of track.	12,749.06	12,503.68
No. of locomotives.	2,801	2,723
first-class passenger cars.	1,093	1,702
second-class and emigrant cars.	358	373
baggage, mail and express cars.	741	741
freight cars.	50,413	50,479
Capital stock paid in.	\$409,945,754.25	\$399,585,663.81
Funded debt.	338,034,427.14	329,670,226.06
Floating debt.	22,401,437.64	30,041,800.40
Cost of road and equipment.	601,078,126.35	638,873,068.74

The State Engineer says that "The reports of several steam roads that have heretofore been classed as horse roads, and horse roads classed as steam roads, have been transferred to their proper place." The changes are not specified, but they probably do not affect greatly the aggregate and only very little the averages per mile of road. We find that the Brooklyn, Bath & Coney Island has been transferred from the horse to the steam railroads, but not the steam section of the Prospect Park & Coney Island, which has a very large traffic.

The addition to mileage worked is about 3 per cent., to locomotives owned also 3 per cent., and to passenger cars as much as 17 per cent. The addition to rolling stock is almost wholly accounted for by the accession of the New York Elevated roads, with their enormous equipment, and the transfer of the Coney Island road mentioned.

The freight car stock is reported to have decreased slightly; both the great roads of the state, however, show a considerable increase in freight equipment.

The work done on these roads was:

Train mileage:	1877-78.	1876-77.
Passenger trains.	21,284,280	20,119,204
Freight trains.	38,400,975	36,813,234
No. passengers carried.	48,769,064	36,517,741
Passenger mileage.	1,016,580,956	1,029,378,134
Tons freight carried.	38,320,573	34,984,781
Tonnage mileage.	5,807,260,813	5,004,643,104

The great increase in the number of passengers carried is due chiefly to the accession of the New York elevated roads, with their great number of short journeys, which, during the current year, will probably about equal the passenger trips of all the other railroads in the state. The passenger mileage, however, is shown to have decreased slightly. The increase in freight traffic was truly great—16 per cent. in tonnage mileage and 9½ per cent. in the number of tons hauled. The smaller passenger traffic was carried with an increase of 5½ per cent. in passenger-train mileage, the average passenger-train load having fallen from 51.16 to 47.76 and the average passenger journey from 28.19 miles to 20.84. On the other hand, the addition of 16 per cent. to the freight traffic was carried with an addition of only 4.6 per cent. in freight-train mileage, the average freight-train load having increased from 135.95 to 151.08. The train service was equivalent to the passage of 3.47 pas-

senger trains and 6.28 freight trains each way daily over the whole length of the roads operated.

The earnings from this traffic were:

	1877-78.	1876-77.
From passengers.	\$23,933,749.20	\$24,212,471.84
From freight.	58,045,197.83	53,638,650.17
From other sources.	7,470,486.96	7,869,656.17
Total.	\$80,449,433.99	\$85,120,787.56

There is an insignificant decrease in passenger earnings, but in freight earnings there is a very considerable increase, though not in proportion to the increase in the freight traffic (9.4 to 16 per cent.). The increase in total earnings is 5½ per cent., against a decrease of 5½ per cent. from 1876 to 1877.

The expenses for the two years were:

	1877-78.	1876-77.
Maintenance of road.	\$13,346,027.64	\$13,530,889.43
Repairs of machinery.	9,283,584.70	9,503,405.90
Operating the road.	33,178,840.28	32,732,619.75
Total.	\$55,807,810.02	\$55,768,915.08

This shows a decrease of 1.4 per cent. in maintenance of roads, of 2.3 per cent. in repairs of machinery, and an increase of 1.36 per cent. in the expenses of operating the roads. The total expenses were larger by less than one-tenth of 1 per cent.

For the past six years the passenger, freight, other and total gross earnings of the New York railroads have been given as follows in these official reports:

Year ending Sept. 30.	Passenger.	Freight.	Other.	Total.
1873	\$26,581,694	\$70,693,323	\$7,229,708	\$104,504,723
1874	25,369,851	65,085,604	7,495,619	97,951,074
1875	24,743,850	56,828,270	7,550,286	89,122,421
1876	25,005,598	55,969,348	8,542,679	80,457,625
1877	24,212,472	53,038,672	7,869,656	85,120,788
1878	23,933,749	58,045,198	7,470,487	80,449,434

The mileage cannot be ascertained exactly from the reports, but it has increased somewhat, though not steadily, for the omission of some leased lines outside of the state sometimes more than balances the editions by new construction.

It seems, then, that in spite of the increase in mileage, passenger earnings have decreased steadily except when stimulated in 1876 by the Centennial Exhibition. But freight earnings, which also decreased steadily until 1876-77, (when they were 25 per cent. less than in 1872-73), increased materially in 1878, and then were larger than in any of the three previous years. Total earnings also were smallest in 1877, and last year were about the same as in 1875 and 1876.

The course of expenses under the three general heads reported, has been as follows for the same six years:

Maintenance of road.	Maintenance of equipm't.	Operating the roads.	Per cent. exp'd.
1873 \$10,774,498	\$12,457,480	\$38,163,809	70,395,787 00.03
1874 17,987,216	12,209,769	55,800,000	60,087,975 07.23
1875 16,808,734	11,168,626	33,001,128	60,978,486 02.42
1876 14,496,703	10,951,262	34,251,474	59,833,475 06.48
1877 13,530,869	9,503,400	32,732,020	55,768,915 05.68
1878 13,346,028	9,283,585	33,178,223	55,807,810 02.39

The decrease in expenses for maintenance, both of road and rolling stock, has been uninterrupted throughout the six years, in spite of the vast increase in freight traffic (from 4,410 millions of ton-miles in 1872-73 to 5,807 millions in 1877-78 = 31.4 per cent.). The other expenses have not decreased so much nor so uniformly. Taking both classes of maintenance expenses together, the reduction since 1873 has been 16 per cent.; in transportation expenses, 13 per cent. The reduction has been 32½ per cent. in road and 25 per cent. in equipment maintenance. There can be no doubt that with this great reduction in maintenance expenses the average condition of the roads has been made materially better. As the State Engineer says in this report: "The roads were never in better condition than they are now." A very large part of this reduction is due to the lower prices of materials and labor, and another large part to the substitution of steel for iron. As prices have advanced somewhat since the last year reported on, it is not likely that this downward course of maintenance of road expenses will be continued, and it will be counted satisfactory if the companies are able to keep down these and their other expenses to the figures of 1878. The reduction in total expenses since 1873 is 20½ per cent., and \$14,600,000 in amount, which exceeds the average dividend payments of the past six years.

The net earnings and payments for interest and dividends for the six years have been:

Year.	Net earnings.	Interest.	Dividends.	dividends.
1873	\$33,569,472	\$11,467,157	\$18,667,583	\$30,134,740
1874	31,863,091	10,476,270	11,712,066	22,188,445
1875	28,143,033	12,314,005	15,257,038	27,571,043
1876	30,174,149	12,761,330	14,206,887	26,968,223
1877	29,216,938	14,223,201	12,613,185	26,830,470
1878	33,641,503	14,418,030	14,042,164	29,000,104

Here we have to thank the reduction of expenses for the fact that the net earnings have been so well maintained. The last year they were larger than in 1873 even (when, we believe, they were the largest ever known), though in 1877 they were smaller than in any other year of the six except 1875. But in considering this we must remember that the year 1876-77 was the worst year for earnings that has been known since the war, and that 1878 was exceptionally favorable;

also that there has been some increase in the mileage worked.

The income on the investments in the railroads was largest in 1873, but 1878 shows a considerable increase over the previous year, due largely, however, to the larger dividend paid by the Lake Shore & Michigan Southern, whose road is mostly outside of the state.

The net earnings in 1878 were at the average rate of 5.24 per cent. on the reported cost of the railroads, or 4.50 per cent. on their stock and debts. The amount actually paid for interest was equivalent to 4 per cent. on the funded debt and floating debt, or to 4.26 per cent. on the funded debt alone. The dividends actually paid were equivalent to 3.52 per cent. on all the stock paid in. These figures for the six years have been:

	1873.	1874.	1875.	1876.	1877.	1878.
Net earnings, per cent. of cost.	5.77	5.10	4.57	4.73	4.10	5.24
Net earnings, per cent. of capital.	4.05	4.43	3.80	4.00	3.91	4.50
Av. interest paid.	4.40	3.59	3.94	4.47	4.26	
Av. dividends paid.	4.70	2.91	3.82	3.53	3.12	3.52

These average returns do not indicate that extraordinary profits are made by investors in New York railroads taken as a whole. The interest on the funded debt is probably about two-thirds paid. The total payments for interest and dividends in the last year were equivalent to 7 per cent. on a capital of \$49,450 per mile of road, while the actual average cost is reported to be \$85,549 per mile of road, and the average amount of stock, funded and floating debt, is \$99,998.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Missouri, Iowa & Nebraska.*—Extended from Steel Station, Ia., west to Corydon, 19 miles.

*Dayton, Covington & Toledo.*—Extended from Harrisonburg, O., northward to Milton, 5 miles. Gauge, 3 ft.

*Duck River Valley.*—Extended from Lewisburg, Tenn., southeast to Petersburg, 14 miles. Gauge, 3 ft.

*Toledo, Delphos & Burlington.*—Track laid from Bluffton, Ind., east by north to Decatur, 15 miles. Gauge, 3 feet.

*Chateaugay.*—Track laid from Dannemora, N. Y., northwest 6 miles. Gauge, 3 feet.

*Chicago, Saginaw & Canada.*—Extended from Edmore, Mich., west to Lakeview, 12 miles.

*Indianapolis, Delphi & Chicago.*—Extended from Monticello, Ind., south by east to Delphi, 18 miles. Gauge, 3 feet.

*Cincinnati Southern.*—Extended from Rockwood, Tenn., north by east to Wartburg, 15 miles.

*Chicago, Milwaukee & St. Paul.*—The *Hastings & Dakota* Division is extended from Montevideo, Minn., westward to Appleton, 24 miles.

This is a total of 128 miles of new railroad, making 1,599 miles thus far this year, against 1,123 miles reported for the corresponding period in 1878, 1,108 in 1877, 1,388 in 1876, 678 in 1875, 984 in 1874, 2,408 in 1873 and 4,264 in 1872.

**THE CROP REPORTS** have been somewhat revised by later information, and so far as spring wheat is concerned the changes are unfavorable. The *St. Paul Pioneer-Press*, which before the harvest was completed estimated the Minnesota crop at 40,000,000, has reduced its estimate to 35,000,000. The reduction is wholly in the southern (and larger) portion of the cultivated part of the state. South of the latitude of Hastings—that is, on the Southern Minnesota, the Winona & St. Peter, the Sioux City & St. Paul, most of the St. Paul & Sioux City, most of the Minneapolis & St. Louis, and most of the River Division and the Iowa &amp

per cent. against Minnesota's 23 per cent., and Dakota's 40 per cent.

Of the Minnesota wheat crops of 1879, there grew in counties adjoining the part of the Winona & St. Peter west of New Ulm (117 miles) only about 1,100,000 bushels, or little more than twice as much as the production of the county in which New Ulm is situated, and not so much by 300,000 bushels as the production of the single county next east—Blue Earth. The single row of counties on this road from the Mississippi to the Minnesota River, six in number, produced about 6,900,000 bushels; the six larger ones west produced about 2,550,000 bushels. The six counties on the line of the Southern Minnesota produced 6,100,000 bushels. The six counties bordering on the Mississippi below St. Paul produced 8,350,000 bushels. About 20,000,000 bushels, or 55% per cent. of the whole production, were raised in the little triangle between the Mississippi and the Minnesota rivers, whose apex is at St. Paul. On the St. Paul-Breckenridge line of the St. Paul, Minneapolis & Manitoba, about 4,400,000 bushels have been raised; on the Northern Pacific, 2,270,000, all in the five western counties on the line. Thus the western part of the state, in which so many new railroads will be constructed this year, has still an extremely light production, and it is only the prospect of a rapid growth in that part of the state in the immediate future that can justify the construction of these roads at this time, cheap as they will be. Further south, we could not judge so well of the traffic by the report of a single crop, but Western Minnesota raises scarcely anything except wheat for market.

THE IOWA LINE OF THE CHICAGO AND NORTHWESTERN RAILWAY was leased originally on terms that were very onerous to the lessee; for a long time the rental was largely in excess of the net earnings. Of late years neither gross nor net earnings of this line have been reported, but the gross earnings can be ascertained by calculation from the amount of the rent, which is reported. The line from Clinton to Council Bluffs is owned by two companies. The Chicago, Iowa & Nebraska Company owns the 82.4 miles from Clinton to Cedar Rapids, and the Cedar Rapids & Missouri River Company owns the 271.6 miles from Cedar Rapids to Council Bluffs and also the 2.6 miles of the branch from Clinton to Lyons. The rental of the first road was originally 47% per cent. of its gross earnings, but shortly after the completion of the Union Pacific the percentage was reduced to 37%. For the last fiscal year (ending with May last), the rental amounted to \$495,104.41, which is 37% per cent. of \$1,320,278.43, which must be the gross earnings. This is at the rate of \$16,023 per mile of road—a very large amount for an Iowa road; but it must be remembered that this is the eastern end of the line, over which passes all the eastward through shipments of the 270 miles between Cedar Rapids and Council Bluffs, and very nearly all the produce delivered at stations on that 270 miles does pass through to the Mississippi. The rental of the Cedar Rapids & Missouri River road amounts to \$1,700 from the first \$4,500 of gross earnings per mile, and to one fifth of the excess over \$4,500 per mile. The rental paid last year was \$706,567.20, which answers to \$2,436,036 of gross earnings, or \$8,884 per mile of road—certainly a very handsome amount for a line so far west. The rental for this part of the line was equivalent to 29 per cent. of the gross earnings: any increase in gross earnings will decrease the percentage.

Thus the total earnings of the line were.....\$3,750,314.43

The total rental was.....1,201,671.61

And the excess over the rental.....\$2,554,642.82

This is at the average rate of \$10,611 per mile of road, with 32 per cent. (very nearly) paid as rental. The average for the whole Chicago & Northwestern property that year was \$6,848 gross earnings and 52% per cent. working expenses. As the gross earnings per mile were so much above the average on these leased roads, it is probable the percentage of expenses was considerably less on them than the average; but if it was the same their working expenses amounted to \$1,986,150, leaving a profit on the lease of \$568,500, against the losses of some previous years. This has been effected, not so much by growth of earnings as by reduction of working expenses. Still the earnings have increased, and on the Cedar Rapids & Missouri River section were about \$50,000 larger last year than ever before. On the other section the earnings were larger in 1874-75, 1875-76, and 1877-78. The new Maple River road (a branch of the Cedar Rapids & Missouri River) is leased on the same terms as the Cedar Rapids road, but with the proviso that the rental shall not be less than \$400 nor more than \$1,350 per mile of road. The amount paid last year was the minimum, which shows only that the earnings must have been less than \$1,700 per mile.

THE CALIFORNIA RAILROADS seem not to have much choice among the numerous political parties which have been contending for the government of the state under the new constitution. The platform adopted by the Republican convention which nominated state officers declares that "the present rates of freights and fares upon all lines of railroads in this state which have received state or national aid should be reduced at least 25 per cent." The Democratic platform says that "the railroads and other transportation corporations of California should be subject to state regulation of rates for passage and freight, in order that a material reduction shall be made." The "New Constitution Party," otherwise known as the "Honorable Bilks," affirms that "the rates of freight and fares of those railroad companies in California which have received government aid should be reduced one-third," and the "Working-

men's Party," headed by Dennis Kearney, says "Congress ought to pass fares and freight bills, prohibit unjust discriminations and other abuses in management of the overland routes. Charges for freights and fares on railroads, and for the use of water, gas, etc., must be so regulated that there shall be no discrimination between persons and places, and that capital actually used in railroad, water and gas companies should yield no greater income than capital invested in farming and other productive industries."

The new constitution, it is known, gives absolute control of railroad rates to three railroad commissioners, who are elected by the popular vote. That is, the price to be paid for a certain commodity is taken entirely from the control of the owners and sellers and given absolutely to the buyers. If the railroad commissioners which these parties nominated accept the platforms on which they ran, apparently they are bound to make a sweeping reduction of rates. But it does not follow that they have this power because the new constitution assumes to give it to them; that, doubtless, will be contested in the courts.

A reduction of one-third in the rates of the Central Pacific would make its net earnings about half a million dollars less than the interest on its funded debt. It is true that it has a large amount of traffic which cannot be affected by California constitutions and laws, however binding they may be within the state. But most of the mileage worked by this company is in California, though only one-third of its main line. No community has ever before put or attempted to put railroad companies so entirely at the mercy of those who use and do not own them. Probably not one voter in ten thousand in California has any railroad property, but every one uses the railroads. It will be interesting to see how this attempt at regulation will turn out.

THE KANSAS CITY-NEW YORK PASSENGER RATE has been restored again: at least, all parties have agreed to restore it, which is not exactly the same thing, however. The restoration is to \$24.75, that is, so as to allow full rates from St. Louis, leaving the roads west of St. Louis 50 cents for the 280 miles from Kansas City to St. Louis, which has been their regular rate now for some months. It seems that the roads east of the Mississippi pay the enormous commission of five dollars per ticket on tickets from Kansas City to New York, and the St. Louis, Kansas City & Northern assumed to give its commission to the passenger, so reducing the rate by that amount. Thus the rates on all traffic to the Mississippi were demoralized, and the business of the roads this side spoiled by the very money which they paid to increase their business. Kansas City business is not great enough to make losses on it a very serious matter to eastern roads; but when Kansas City-New York tickets are sold for \$19.75, of course there will not be much demand for St. Louis tickets at \$24.25. But if companies will pay a commission of five dollars a ticket, we are not disposed to sympathize much with them for any losses that may grow out of it, directly or indirectly. Apparently there is a crying demand for reform in passenger business; if one-half of the savings that seem easy to be made by proper agreement and cooperation of the railroad companies should be granted to the public in the form of reduced rates, it would do a great deal toward gaining popular favor for such cooperation. Freight traffic is doubtless the most important, but the number of persons who pay freight bills directly is comparatively small. But almost everybody feels a direct interest in passenger rates. Generally in this country the margin between passenger charges and passenger expenses, especially on through travel, has been too small rather than too large; but an excellent way to increase it would seem to be by reducing the expenses for securing business, such as this five-dollar commission.

CHICAGO LUMBER RECEIPTS for the week ending Aug. 26 were the largest ever known—55,786,000 ft.—and on one day of that week 21,000,000 ft. were received. The lumber fleet is fully employed, and this and the demand for vessels to carry ore from Lake Superior tends to keep up the grain rates, though vessels are used in the lumber and ore trade which are not acceptable for grain. Down to the end of that week Chicago receipts this year had been 27 per cent. more than last year, and Chicago shipments 21 per cent. more. The market at this time is extraordinarily active, which is excellent evidence that the Western farmers are able to buy more than heretofore and that the railroads will have an unusually heavy fall business—good in both directions—in spite of the low prices of produce.

WATER RATES varied little from Wednesday to Saturday last week, but have fallen a little this week.

Lake rates last Wednesday were reported at 4½ for corn and 5 for wheat from Chicago to Buffalo. Canal rates were pretty steady at the offering rates of Wednesday of last week until Tuesday of this week, when they fell off a quarter of a cent, to 7 cents for wheat, and 6½ for corn from Buffalo to New York. Ocean rates were pretty steady at 7½d. to 7½d. per bushel from New York to Liverpool until Tuesday, when there was a slight decline, followed by a larger one on Wednesday, a lot being taken that day at 6½d.

#### Glass Sleepers.

Most of our readers have doubtless heard of the glass sleepers of the fairy story, but probably most of them will be surprised to hear of the use of glass sleepers for railroads. The last number of *Engineering*, however, contains the fol-

lowing description of what it calls "a new and somewhat singular material for railway and tramway sleepers," which it says has lately been introduced into England, this material being glass toughened by a process discovered by Mr. Frederick Siemens, of Dresden. It continues:

"Owing to Mr. Siemens' patents for the most recent improvements in his process not yet being completely secured, we must postpone for the present any details of the toughening process itself, but we may state that its effect appears to be to secure a product differing essentially from glass toughened by the well-known process of M. de la Bastie, inasmuch as when broken it does not fly to pieces like glass treated by the last-mentioned process, but merely fractures somewhat like cast iron. The material used by Mr. Siemens for his sleepers is glass of the commonest kind molded to any desired form. The sleepers are being introduced into this country by Mr. Hamilton Lindsay Bucknall, who has lately laid some of them on the line of the North Metropolitan Tramways at High street, Stratford. The sleepers in this case are of exactly the same section as the wooden longitudinal sleepers they have replaced, namely, rectangular, 4 in. wide by 6 in. deep, the upper side being molded so as to accurately fit the rails. They are laid in lengths of 3 ft., and to avoid the danger of settlement at the joints, bearing-plates 10 in. by 5 in. by 1½ in. are placed at these points, these plates being also utilized for effecting the securing of the rails by a fastening which obviates the necessity of molding any holes in the glass. We may add the samples of the sleepers above mentioned have been tested by Mr. Kirkaldy, and their average breaking weight when resting on supports 30 in. apart has been found to be about 5 tons, this being probably about two-thirds of the resistance which would be afforded by a good pine sleeper of similar dimensions. It must, however, be borne in mind that whereas the timber would become depreciated by use, the glass promises to be practically indestructible by moisture, etc."

"At the works of Mr. Wm. Henderson, a plate of Mr. Siemens' toughened glass 9 in. square by 1½ in. thick, imbedded in gravel ballast 9 in. deep, and having on its top a wood packing ½ in. thick, and a piece of rail, was subjected to the action of a falling weight, the blows being delivered on the rail. The weight was 9 cwt., and blows were successively delivered by letting this weight fall from heights of 3 ft., 5 ft., 6 in., 7 ft., 10 ft., 12 ft. 6 in., 15 ft., 17 ft., 6 in., and 20 ft. Under the last-mentioned blow the rail broke, the glass, however, being uninjured. A higher fall could not be obtained, and a greater weight was not available, a smaller section of rail was substituted for that previously employed, and the glass was broken by a second blow of the 9 cwt. falling 20 ft., the plate being driven through the ballast into the hard ground. A cast-iron plate, 9 in. square and ½ in. thick, tested in a similar way, broke with a blow from the 9-cwt. weight dropped 10 ft."

"The cost of the toughened glass is stated to be about the same per ton as that of cast iron, but as its specific gravity is only about one-third that of iron, the cost of any article of given dimensions is of course materially less. The material has as yet been too recently introduced, and too little is known of its characteristics, to enable any very decided opinion to be formed as to its future capabilities; but the results of the experiments so far made with the material are certainly of an exceedingly promising character, and the further development of its applications will be watched with much interest."

#### General Railroad News.

##### MEETINGS AND ANNOUNCEMENTS.

###### Meetings.

Meetings will be held as follows: *Washington City, Virginia Midland & Great Southern*, bondholders' meeting, to choose three trustees under the agreement of reorganization, at the National Mechanics' Bank, Baltimore, Sept. 16, at noon.

*St. Louis, Kansas City & Northern*, special meeting, at the office in St. Louis, Oct. 14, to vote on the proposed consolidation with the Wabash Company.

*Wabash*, special meeting, at the office in Toledo, O., Oct. 14, to vote on the proposed consolidation with the St. Louis, Kansas City & Northern Company.

###### Railroad Conventions.

The International Road-Masters' Association will hold its annual convention at Niagara Falls, N. Y., Sept. 10, instead of Sept. 6, as has been announced in this place several times.

The Brotherhood of Locomotive Firemen will hold its sixth annual convention in Chicago, Sept. 8-13, inclusive, in the Appellate Court Room, Grand Pacific Hotel. The opening exercises will be held Sept. 8, at 9:30 a. m.

The Association of Railroad Claim Agents will hold its third annual meeting at the Girard House, Philadelphia, beginning Monday, Sept. 10, at 10 a. m.

The Master Car-Painters' Association will hold its tenth annual meeting in Detroit, Mich., beginning Sept. 10, at 10 a. m.

The National Association of General Passengers and Ticket Agents will hold a special meeting at the Windsor Hotel, New York, Friday, Sept. 12, beginning at 11 a. m., and this meeting will take the place of the regular half-yearly meeting that was to have been held in Louisville, Sept. 16.

The General Time Convention will hold its regular fall meeting at the Windsor Hotel, New York, Oct. 9.

The Southern Time Convention will hold its fall meeting at Barnum's Hotel, Baltimore, Oct. 15.

###### Dividends.

Dividends have been declared as follows:

*Atchison, Topeka & Santa Fe*, 3 per cent., semi-annual, payable on demand.

*Chicago, Burlington & Quincy*, 4 per cent., semi-annual, payable Sept. 15.

*Raleigh & Gaston*, 3 per cent., payable Oct. 1. This is the first dividend for nine years.

###### Mail Service Extensions.

Mail service has been ordered over railroad lines as follows:

*Louisville, Harrod's Creek & Westport*, service ordered from Louisville, Ky., to Prospect, 11 miles, from Sept. 1.

###### Foreclosure Sales.

The Pittsburgh, New Castle & Lake Erie road was sold at sheriff's sale in Pittsburgh, Aug. 27, to satisfy a judgment for \$5,000, and bought for that amount by Major A. M. Brown, who is understood to represent a number of the stockholders. The purchasers intend to organize a new company, taking in all the old stockholders who have paid up their subscriptions. A protest against the sale as illegal was made, but not regarded. The road is of 3-ft. gauge, and is in operation from Etna, near Pittsburgh, to Harmony, 30 miles. It has a float-

ing debt of \$154,000, mostly secured by pledge of first mortgage bonds.

The *Lake View & Collamer* road was sold under foreclosure of the first mortgage in Cleveland, O., Aug. 28, and bought for \$11,000 by Wm. E. Lewis, who had purchased it once before under foreclosure of second mortgage. The road is 10 miles long, from Cleveland to Euclid, and was built as a light suburban road. It will be transferred to the new organization known as the Cleveland, Painesville & Ashland Company, which proposes extending it eastward.

The *Atlantic & Gulf* road will be sold by John Screeven and Samuel A. Strang, Receivers, in Savannah, Ga., Nov. 4, under a decree of the United States Circuit Court. The sale will include the line from Savannah to Bainbridge, 237 miles; the Wharf Extension in Savannah, 2 miles; the Junction Branch near Savannah, 4 miles; the branch from Dupont, Ga., to Live Oak, Fla., 49 miles, and the branch from Thomasville, Ga., to Albany, 58 miles, 350 miles of road in all, with all other property of the company; it will be made subject to six sectional mortgages, \$1,044,000 in all, and to the consolidated mortgage for \$1,666,000, making \$2,710,000 bonded debt to remain; also subject to all lawful debts and contracts of the Receivers. The sale will be for cash, but bonds and coupons of the foreclosed mortgage will be received at their *pro rata* value for any balance remaining after paying trust charges, court costs, etc., and dividend due bondholders not joining in the purchase. The sale will remove about \$850,000 of the bonded debt.

The *Union Canal* will be sold at sheriff's sale in Reading, Pa., Oct. 4. It is one of the oldest canals in Pennsylvania, and is 78 miles long, from Reading to the Susquehanna River at Middletown. Its line is generally parallel to the Lebanon Valley Branch of the Reading road.

#### ELECTIONS AND APPOINTMENTS.

*Atlantic & North Carolina*.—The officers of this company are now as follows: President, John D. Whitford; Secretary and Treasurer, F. C. Roberts; General Book-keeper, Joseph Fulford; Freight Agent, W. Dunn; Master Mechanic, B. Manly. Offices at Newbern, N. C.

*Central Pacific*.—Mr. J. A. Fillmore has been appointed Master of Transportation, a new office on this road, we believe.

Mr. R. H. Pratt has been appointed Superintendent of the Sacramento, Oregon and California Pacific divisions, in place of Mr. Fillmore, promoted. Mr. A. G. Fell has been appointed Superintendent of the Salt Lake Division, in place of Mr. Pratt, transferred.

*Chicago & Block Coal*.—The officers of this company, successor to the Indiana North & South, are: President, A. J. Duer, Harrisburg, Pa.; Vice-President, Henry McCormick, Harrisburg, Pa.; General Manager, A. F. Beach, Veedersburg, Ind.

*Dubuque & Dakota*.—The officers of this company are: President, J. B. Dumont, New York; Treasurer, C. H. Booth, Dubuque, Ia.; General Agent, G. H. Candee, Waverley, Ia.

*Great Western, of Canada*.—Col. Francis D. Grey, late Vice-President, has been chosen President, in place of Rt. Hon. Hugh C. E. Childers, resigned.

*Louisville, Cincinnati & Lexington*.—At the annual meeting in Louisville, Sept. 2, the following directors were chosen: J. P. Schmidt, Jacob Kreiger, Jr., John B. Bangs, G. S. Pratt, Robert B. Thomas, Edward Fulton, Charles Tilson, Louisville, Ky.; Henry Bell, E. D. Sayre, W. C. Johnson, Lexington, Ky.

*Manhattan Elevated*.—Mr. Robert Stewart is now General Superintendent of the Eastern Division, the former East Side Line of the New York Elevated road. Mr. M. Van Brocklin is General Superintendent and T. T. Onderdonk Assistant Superintendent of the Western Division, the former Metropolitan Elevated road.

*New Jersey & New York*.—Mr. J. S. Drake has been appointed Master Mechanic, with office in Jersey City.

*New Jersey Southern*.—Mr. W. J. Christopher has been appointed Chief Clerk of the Machinery Department, with office at Elizabethport, N. J. Appointment to date from Aug. 1, 1879. He will have direct charge of all the accounts, books and papers of the Machinery Department, and of all clerks therein employed.

*Peoria & Springfield*.—The following officers were recently chosen: James Haines, President; A. J. Ware, Vice-President; B. S. Prettyman, Secretary and Solicitor; J. B. Barnes, Treasurer.

*Selma & Greensboro*.—Mr. Porter King is President of this company, successor to the Selma, Marion & Memphis. The officers in charge of the road are: A. M. Fowkes, Receiver; E. W. Rucker, Superintendent. Office at Marion, Ala.

*Sussex*.—Mr. A. A. Driggs has been appointed Master of Transportation, with office at Newton, Sussex County, N. J.

*Texas & Pacific*.—The directors of this company are now as follows: W. M. Harrison, Marshall, Tex.; T. L. Nesmith, California; B. M. Johnson, New Orleans; W. C. Hall, Louisville, Ky.; Alfred Gaither, Cincinnati; W. T. Walters, Baltimore; John C. Brown, Nashville, Tenn.; William Thaw, Pittsburgh; Thomas A. Scott, Frank S. Bond, W. W. Keifer, H. H. Houston, R. D. Barclay, Philadelphia; Marshall O. Roberts, Henry G. Stebbins, New York. The officers are: President, Thomas A. Scott; Vice-Presidents, Frank S. Bond, John C. Brown; Assistant to the President, James P. Scott; Secretary, Charles E. Satterlee; Treasurer, George D. Krumhaar.

*Toledo, Delphos & Burlington*.—The officers are now as follows: President, Henry R. Low; General Counsel, A. H. McVey; Auditor, J. W. McElvaine; Assistant Treasurer, W. H. Fuller; General Freight and Ticket Agent, D. L. Williams; Superintendent of Construction, J. W. Hunt; Division Superintendent, Edwin Williams. Offices at Delphos, O., except that of the President, which is in New York.

*Vaca Valley & Clear Lake*.—The officers of this company are now as follows: President, A. M. Gunn; Secretary, G. A. Stone; Treasurer, J. O. B. Gunn; General Superintendent, G. B. Stevenson, General Passenger and Ticket Agent, W. F. Stevenson. Offices at Vacaville, Cal.

*Youghiogheny*.—Mr. Henry Cartwright has been chosen Treasurer, in place of J. P. Steiner, deceased.

#### PERSONAL.

—Col. Wm. Leighton, one of the oldest settlers of Keokuk, Ia., and for many years a prominent merchant, died in that city Aug. 20, aged 66 years. He was the first Secretary and Treasurer of the Des Moines Valley Railroad Company, and for several years joined with others as lessees of the road.

—Mr. D. Jones Lucas, lately engaged as Civil Engineer on

the Buffalo, Chautauqua Lake & Pittsburgh road, was married Sept. 2 to Miss May S. Wales, of Corry, Pa. Mr. Lucas is now residing in Lewiston, Maine.

—Mr. Joseph W. Hunt, Superintendent of Construction of the Toledo, Delphos & Burlington road, was killed at Delphos, O., Sept. 2. He attempted to cross the track while an engine was switching some cars, but was caught between two cars and crushed to death.

—Mr. Horace Scott, for many years General Superintendent of the Jeffersonville, Madison & Indianapolis road, has tendered his resignation, to take effect Oct. 1. The reasons are not given, though it is reported that there have been some differences of opinion between Mr. Scott and some of the managers of the Pennsylvania Company.

—The friends of Mr. Leander Garey, President of the Master Car-Builders' Association, will be pained to hear of his serious illness with typhoid fever. As we go to press he is reported as slightly better, but his condition is such as to be the cause of great anxiety to his family and acquaintances.

#### TRAFFIC AND EARNINGS.

##### Railroad Earnings.

Earnings for various periods are reported as follows:

Seven months ending July 31:

	1870.	1878.	Inc. or Dec.	P. c.
At. Miss. & Ohio....	\$853,710	\$880,251	D. 335,541	4.0
Philadelphia & Erie.	1,505,081	1,475,733	I. 119,348	8.1
Net earnings....	414,745	360,633	I. 45,112	12.2
Pa. Minnesota....	315,720	427,184	D. 111,464	26.1

Month of June:

	1870.	1878.	Inc. or Dec.	P. c.
Del. & Hud. Canal Co., leased lines....	\$373,230	\$288,370	I. \$84,860	29.4
Net earnings....	150,650	98,309	I. 61,341	62.4

Month of July:

	1870.	1878.	Inc. or Dec.	P. c.
At. Miss. & Ohio....	\$138,224	\$127,441	I. \$10,783	8.5
At. & Gt. Western....	358,105	37,188	I. 50,917	16.6
Bur. Cedar Rapids & No. ....	107,460	95,007	I. 12,983	13.7
Net earnings....	25,463	14,393	I. 11,424	81.6
Cincinnati Southern, Kan. City, St. Joe. & C. B. ....	135,467	89,916	I. 36,551	37.0
Philadelphia & Erie, Southern Minnesota....	241,018	214,081	I. 26,937	12.6
50,302	53,201	D. 2,800	5.3	

Month of August:

	1870.	1878.	Inc. or Dec.	P. c.
Chicago, Mil. & St. Paul....	\$720,000	\$532,483	I. \$196,517	36.9
St. Louis & San Francisco....	181,400	121,500	I. 50,000	40.3
Third week in August:				
Atchison, Topeka & Santa Fe....	\$144,000	\$117,388	I. \$26,612	22.7
Chicago & Alton....	150,043	142,087	I. 7,956	5.6
Chi. & Eastern Ill. ....	10,920	10,000	I. 1,227	6.6
Chicago, Mil. & St. Paul....	162,000	113,036	I. 48,904	43.3
Hannibal & St. Joe....	31,051	48,002	D. 16,951	35.3
Mo. Kan. & Texas....	67,335	64,426	I. 2,900	4.5
& So. ....	101,300	96,000	I. 5,291	5.5
Wabash....	116,400	137,308	D. 20,980	15.3

Week ending Aug. 22:

	1870.	1878.	Inc. or Dec.	P. c.
Great Western....	\$80,474	\$90,703	D. \$1,319	1.5

Week ending Aug. 23:

	1870.	1878.	Inc. or Dec.	P. c.
Grand Trunk....	\$165,016	\$164,208	I. \$808	0.5

#### Grain Movement.

Receipts and shipments of grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports, have been, in bushels, for the week ending Aug. 16 of the past seven years:

	Northwestern Shipments.		
Year.	Total.	By rail.	P. c. by Atlantic receipts.
1873.	5,610,407	3,769,232	505,031 15.8 2,451,709
1874.	4,944,590	3,076,530	485,712 15.8 2,872,208
1875.	3,684,000	2,653,444	712,462 26.9 3,003,929
1876.	3,020,489	3,764,548	1,614,256 42.8 2,913,160
1877.	5,455,322	4,426,953	933,691 21.1 4,589,353
1878.	8,147,091	5,328,243	1,497,000 28.1 6,417,891
1879.	6,208,077	6,335,513	1,705,237 26.9 7,085,354

For the week ending Aug. 16 this year the receipts of the Northwestern markets are about the same as for the previous week, and have been exceeded two weeks this year. It will be noticed, however, that they are very much (23 per cent.) less than in the corresponding week of last year. In this letter week receipts of unexampled magnitude began, and for that and the three following weeks they averaged about 8,600,000 bushels per week.

For the same week ending Aug. 16 the shipments of Northwestern markets were 18 1/2 per cent. more than in the previous week and 19 per cent. more than in the corresponding week of last year. They have been exceeded in but one week of this year, in but two weeks of last year, and never in any previous year. Atlantic receipts were smaller than in either of the two previous weeks, but in previous years have never been equaled but once.

Of the Northwestern receipts, 49.3 per cent. arrived at Chicago, 15.7 at St. Louis, 14.8 at Toledo, 8.1 at Detroit, 8 at Peoria, 2.4 at Cleveland, and 2.2 per cent. at Milwaukee, which very seldom, indeed, has been at the foot of the list. Receipts were about equal of wheat and corn, but while Chicago received nearly three-fourths of the corn it got little more than a fifth of the wheat. Toledo led in wheat receipts, with St. Louis close after.

Of the receipts at Atlantic ports, 45.6 per cent. was at New York, 20.2 at Philadelphia, 17.7 at Baltimore, 7.9 at Montreal, 7.6 at Boston, 0.9 at New Orleans, and 0.1 per cent. at Portland. Baltimore's receipts are the smallest for five weeks, Montreal's the largest of the season.

For the week ending Aug. 23 the receipts and shipments have been:

	Northwestern Shipments.		
Year.	Total.	By rail.	P. c. by Atlantic receipts.
1873.	5,063,938	3,225,712	647,364 20.1 3,241,737
1874.	5,063,041	1,65,648	606,194 18.2 3,480,346
1875.	4,420,986	3,146,585	1,025,704 32.6 1,604,312
1876.	4,280,052	3,872,963	1,520,811 30.3 3,227,690
1877.	5,331,315	4,632,800	1,036,221 22.6 4,493,252
1878.	9,015,180	5,725,812	1,303,453 22.8 6,823,013
1879.	6,559,199	6,238,710	1,818,087 29.1 7,439,646

For this week receipts at Northwestern markets were the largest of the year, but 27 per cent. less than in the corresponding week of last year, when they were the largest ever known. The shipments of these markets were a little smaller than in the preceding week, but 9 per cent. more than in the corresponding week of last year, when the shipments did not keep pace with the extraordinary receipts. Atlantic receipts were also a little less than in the preceding week.

Of the Northwestern receipts for this week ending Aug. 23, 45.8 per cent. was at Chicago, 15.2 at St. Louis, 15.1 at Toledo, 8 at Detroit, 7.8 at Peoria, 2.7 at Cleveland, and 1.7 at Dul

its managers will gladly forego their own views and adopt any plan by whomsoever suggested that will in the end produce the desired result."

#### Delaware Fruit Traffic.

Shipments of peaches north over the Delaware Railroad to Aug. 30 were 3,229 car-loads. Several days last week over 180 car-loads a day were sent. This week shipments are falling off, but are still large.

#### East-Bound Rates.

The tariff of Aug. 25 differs from that of Aug. 4 only in the following rates, in the Chicago-New York list, rates to other places being changed accordingly:

Fourth class is advanced from 30 to 35 cents per 100 lbs. grain, from 25 to 30; bulk meats from 35 to 40, grass and clover seed from 30 to 35. The lumber rate, which remains unchanged, is now the lowest rate—26½ cents. Heretofore the grain rate has always been the lowest.

#### East-Bound Passenger Rates.

On Aug. 28, the St. Louis, Kansas City & Northern Company began to sell through tickets from Kansas City to New York at \$24.75, the full tariff rates being restored. It is reported, however, that some cutting is still done in an underhand way.

#### New York State Canals.

The tonnage and receipts of the New York state canals up to the end of August were as follows:

	August	Season	
	1879.	1878.	1879.
Tonnage.....	779,015	715,364	2,800,401

Tolls received..... \$153,026 \$138,117 \$464,700 \$547,640

In 1878 there were 23 days' more navigation than this year, the canals having opened over three weeks earlier.

#### Erie Canal.

The business of the Erie Canal at Buffalo from the opening up to Aug. 31 was as follows:

	1879.	1878.	Decrease.	P. C.
Boats cleared.....	4,146	4,920	774	15.7
Tolls received.....	\$276,517	\$337,520	\$61,003	18.1
A.V. receipts per day.....	2,404	2,428	24	1.0

The canal opened May 8 in 1879, and April 14 in 1878.

#### RAILROAD LAW.

##### Easement—Limitation by Use.

In Onthank against the Lake Shore & Michigan Southern Company, in the New York Court of Appeals, defendant, having acquired by deed a right to lay down and keep in repair an iron pipe through plaintiff's land to convey water from a spring, which also supplied plaintiff with water, laid down a two-inch pipe and used it several years. Held, that the extent of the easement thus became fixed, and that the company had no right to substitute a larger pipe or lay down an additional pipe without plaintiff's consent.

##### Bill of Lading—Terms of Receipt.

In Wilde against the Merchants' Dispatch Line, the Iowa Supreme Court held that when a carrier, following its usual custom, gave a receipt containing no limitation, and afterward, in exchange for the receipt, issued a bill of lading restricting its liability in certain cases, and the goods were lost in transit, by a peril excepted in the bill of lading, the carrier was liable for the loss. But where the same routine was followed, but the receipt originally given read "subject to the conditions contained in the bill of lading of this company," held, that the shipper was bound by the bill of lading given in exchange for the receipt.

##### "Ultra Vires."

It is a familiar doctrine that corporations possess not only such powers as may be expressly conferred, but also such as are reasonably inferred from those expressly granted. These incidental powers are such as are necessary for the purpose of carrying into effect the powers expressly granted. And although the rule is that grants of this character must be strictly construed, still they must be reasonably construed to carry out the purposes of the corporation. Thus, it has been held that a railroad corporation, chartered to construct and operate a particular railroad, has an implied power, without any express provision conferring it, to make a contract to carry beyond the limits of its own line, and that such a contract is not *ultra vires*; that it has implied authority to erect a refreshment room; \* \* \* and that corporations generally have authority to borrow money to carry out the objects for which they were created, and to execute their notes or other obligations therefor; to receive and transfer notes and bills unless particularly restrained therefrom by the charter; and even that they may generally, by virtue of their implied powers, make promissory notes. \* \* \* \*

The general doctrine is now held that a corporation is liable for the negligence and other torts of its agents and servants, even when relating to and connected with acts of the corporation that are *ultra vires*. And it is not necessary that the wrong done be one within the general scope of the powers of the corporation; but it seems to be sufficient in this respect that it be done in the execution even of usurped powers and of purposes clearly *ultra vires*. Thus we have seen a railroad corporation held liable for an injury caused by the negligence of its servants while operating a railroad not authorized by the charter.

The right of a stockholder to restrain a corporation from *ultra vires* acts is universally recognized. And this right may be exercised also by a creditor, either when the corporation is about to do such an act, or when the directors, or other officers or agents propose to assume powers not conferred upon the corporation. This is a just and equitable right of the stockholders. They have a right, by virtue of the contract entered into by and between them and the corporation, to have the funds of the corporation appropriated to the objects and purposes for which it was instituted, and to dividends arising therefrom. And the creditors have also a right to restrain general speculations and acts *ultra vires*, as they have become creditors with the knowledge and understanding that they are constituted a corporation for certain purposes and with certain powers; and it is to be presumed that the credit was given with a full knowledge of these matters, and a judgment of the ability to meet the obligation based upon such purposes and powers of the debtor. \* \* \* The remedy of the stockholders or creditors is, as we have seen, ample in the first instance, and they may enjoin an *ultra vires* act on the part of the corporation, or its directors, or other officers or agents; but if they remain indifferent and passive, and permit a contract *ultra vires* to be made, especially where they receive the benefit of such *ultra vires* contract without objection, they should not be permitted to enjoin the corporation from executing the contract on its part. \* \* \* The state conferring the charter has an ample remedy against *ultra vires* acts by proceedings against the corporation of *quo warranto*, or in the nature of *quo warranto*, to test its right to do the acts, and to secure a forfeiture of its charter in case it has usurped powers not possessed, or in case of abuse of those conferred.—*American Law Review*.

#### Legal Process Against Property in Charge of Carrier.

A common carrier is not liable for goods taken out of his hands by legal process. Where goods are attached in the hands of a common carrier, he cannot give them up to the consignee while the attachment is pending. In such case the carrier is not answerable, even though the goods have been attached for the debt of a third person, under a proceeding to which the employé of the carrier is not a party. The rights of the officer to hold the goods can only be determined by the court having jurisdiction of the attachment suit. The remedy of the bailor, for an illegal seizure of his goods for the debt of another, is not against the carrier, but against the officer making the seizure, or against the plaintiff in the attachment, if he directed the seizure. But, when such a seizure is made, the carrier must assure himself that the proceedings under which the seizure is made are regular and valid; but he is not bound to litigate for his bailor, nor to show that the decision of the court issuing the process is correct in law or fact. But he is not bound to respect the title of the bailor, nor to follow the goods.—*Southern Law Review*.

#### Iowa Railroad Assessment Law.

In Dubuque against the Chicago, Dubuque & Minnesota Co., the Iowa Supreme Court held constitutional a statute providing that the taxable value of a railroad in each township should be that portion of the whole valuation of its property which the length of its track within the township bore to its whole length of track; irrespective of the value of the property of the railroad which might be within any particular township.

#### Power of Court in Foreclosure Suits.

In Sage against the Central Railroad of Iowa, it was held by the Supreme Court of the United States that, under the general prayer for relief, specific directions may be given in a decree, and although the special prayer for relief is for strict foreclosure, if there is a general prayer the Court may not only decree a sale, but may, under special provisions in the mortgage stated in the bill, give the plaintiffs (trustees) permission to purchase, and may regulate the rights of the cestui que trustent.

#### THE SCRAP HEAP.

##### Railroad Equipment Notes.

The shops of the Utah Central road at Salt Lake have built an officers' car for use on that road and the Utah Southern. It is 32 ft. long and has a small but complete kitchen, a sleeping room with four beds and a very handsome sitting room, furnished with easy-chairs and a lounge. The platforms are wide, so that seats can be placed on them. The wood-work is entirely of Utah wood, and all the work was done in the shops, under charge of Master Car-Builder Samuel S. Tucker.

The shops of the North Carolina Railroad, at Company Shops, N. C., turned out 39 new box cars last year, besides all the repair work.

The Delaware, Lackawanna & Western shops, at Kingsland, N. J., are building two new passenger engines.

The Dickson Manufacturing Co., at Scranton and Wilkes-Barre, Pa., has several contracts for locomotives on hand, besides other work.

The Baldwin Locomotive Works, in Philadelphia, are now building 15 engines for the Cincinnati Southern; 14 for the Chicago & Alton; 6 for the Kansas Pacific; 5 for the Chicago, Burlington & Quincy; 3 for the Burlington, Cedar Rapids & Northern; 1 for the Guatemala Railroad, and several for Brazil.

The Pennsylvania Railroad shops at Altoona are to build 20 heavy engines expressly intended for fast passenger service.

The Danforth Locomotive Works, at Paterson, N. J., have six locomotives of the Cincinnati Southern order to build.

##### Iron and Manufacturing Notes.

The Keystone Rolling Mill, in Pittsburgh, has been bought by a new company. It is at present run by the National Tube Works Co., under a lease which will expire Dec. 1 next.

The Old Colony Iron Works, at East Taunton, Mass., are busy, and have lately made large shipments.

The Harris Iron Works, at Buffalo, N. Y., are very busy, and have more orders on hand than for some years past.

The furnace of the Huron Iron Co., in Jackson County, O., will go into blast soon.

The large blowing engine exhibited at the Centennial Exhibition by I. P. Morris, Philadelphia, has been purchased by the Andover Iron Co., and will be used for its new blast furnace at Stanhope, N. J., which is nearly finished.

The Greenwood Rolling Mill, at Tamaqua, Pa., started up July 23, and has since been running full time.

An effort is being made to start a rolling mill at Nashville, Tenn. A company will be organized if a sufficient amount of stock subscriptions can be secured.

The blast furnace at Millerstown, Pa., was sold by the sheriff, Aug. 30, and bought in for \$8,000 by the bondholders, who have a first mortgage on the property.

The Wythe Speed Recorder Co. has decided to build new shop at Kent, Ohio.

The Atlanta (Ga.) Rolling Mill is running full double turn, with plenty of orders ahead.

Meeker & Hedden, at Newark, N. J., are making all the wood-work for the stations, etc., of the Manhattan Elevated extensions in New York.

##### Bridge Notes.

Clarke, Reeves & Co., at Phoenixville, Pa., have received the contract for the bridge over the Ottawa River at Ottawa, for the Quebec, Montreal, Ottawa & Occidental road.

The Keystone Bridge Co., at Pittsburgh, has taken contracts for highway bridges over Bald Eagle Creek at Tyrone, Pa., and Blair Creek at Duncansville, Pa.

##### Prices of Rails.

Steel rails are higher, but with few sales, and quotations are nominal at \$48 to \$50 per ton. Prices of materials are gradually advancing, and the cost of production is necessarily increasing.

Iron rails are firm, with quotations \$40 to \$41 per ton and sales of 3,000 tons reported. As with steel rails, cost of material and production are gradually increasing. Some sales of foreign rails are reported at \$42 per ton at tide-water.

Old iron rails are still going up in price, and sales of 10,000 tons are reported in Philadelphia at \$25.50 to \$26.50 per ton, mostly over \$26. At Pittsburgh sales of 3,600 tons are reported at \$27.25 and \$27.50 per ton.

##### Prices of Old Material.

Quotations for old iron and steel at Pittsburgh are as follows: Old car-wheels, \$21.50 to \$22 per ton, gross; No. 1 wrought scrap, \$23.50 to \$24, net; railroad car axles, \$30; railroad car-springs, \$31; wrought turnings, \$16 to \$16.50; car metal, \$16 to \$16.50, gross; cast borings, \$12 to \$12.50. The market is reported firm.

#### Dead Weight.

The country folk of Germany are a little primitive, but an honest farmer of Weiden, near Ryensburg, deserves the first prize for simplicity. He recently inquired of a notary in the city after a railway engineer who had disappeared. It turned out that he had lent money to the engineer on the security of the locomotive run by him, supposing it to be his personal property, and that he now wished to seize this collateral.

Rats have been taking lessons of the tramps, and a big one dead-headed from Bellows Falls, Vt., to Rutland the other day on the truck of a freight car. He was found at Rutland, and at once knocked on the head by an unsympathizing brakeman.

An unsympathizing Chicago paper says: "Chicago's only narrow-gauge road was knocked down under the hammer yesterday. See law column. And now the Millington through route, all under one management, is only to carry gravel from Brush Hill gravel pits. Pitiful descent of high-alimed rocket! The rural region of Millington should have supported this road better."

A freight brakeman, who has had a good deal of experience with tramps, says that it may have been true in Solomon's time that "soft answer turneth away wrath," but nowadays the reputation of being a bad man in a fight is what does it.

#### Neglected Opportunities.

"Do you know anybody that's buried up in that cemetery?" said an elderly lady passenger to a railroad conductor, pointing to a resting place for the dead that the cars were whizzing past.

"No, ma'am, I don't."

"How long have you been conducting on this road?"

"About four years, ma'am."

"Well, if I'd been four years on this road I'd found out suthin' or other. I shd hate to be so ignorant," and an expression of extreme disgust stole over her face as she put down her parasol with thud.—*New Haven (Conn.) Register*.

#### Long Mileage of a Postal Car.

In the year 1878 the Lake Shore & Michigan Southern Railway postal car, No. 688, running between Chicago & New York, made 173,993 miles; this is a trifle more than 476 miles every day of the 365 days, and almost 20 miles an hour for every hour of the time. The car never lost a trip (except when detained by snow in December) during the year. This mileage can hardly be beaten by a car of any class.

#### Steam Street Cars.

The Geary Street Railroad in San Francisco has adopted separate steam motors for a section of its road extending from Central avenue to the park, about 1½ miles long, and beyond the closely-built portion of the city.

#### Four-Wheel Box Cars.

The New York Central & Hudson River Company has been building a number of small box cars, which are carried on four wheels, and are not more than two-thirds as long as the ordinary box car. It is expected that they will be very convenient for local traffic, going to way stations, where the ordinary cars now have to be sent with only half a load.

The Central Railroad of New Jersey used to have a number of small four-wheeled box cars, intended, like these, for local business. For some reason, however, their use was given up, and there are few or none now on the road. Some of the New England roads have quite a number of these small cars in use.

#### Tramps as Sealed Freight.

A Washington dispatch of Aug. 29 says: "Inspector of Customs Silva, stationed at Ogden, Utah, reports to the Treasury Department the arrival on the 21st inst. of a car from the East containing unappraised merchandise in bond, about which his suspicions were aroused, although the fastenings were not disturbed and the seals prescribed by circular of the 21st ult. for that class of goods were intact. Becoming satisfied that all was not right the inspector ordered the car to the transfer station, and upon opening it found three tramps secreted within. The goods, with the exception of three cases of glass tubes consigned to a San Francisco firm, were found to agree with the manifest. The cases of tubes referred to were broken. The men were arrested and have been held for the action of the grand jury. It is not thought that the object of the men was robbery, they evidently only desiring to steal a ride. They state that they entered the car at Cheyenne during the night by prying the end of the door off the rail on which it slides, getting in at the top, and, by the aid of a confederate outside, springing the door back to its proper position."

#### A Narrow Escape.

The other day, as J. B. Wiley, a conductor on the Central Vermont road, was passing between two trains at White River Junction, Vt., they both started, and a car loaded with bark, being wider than the others, caught him by the shoulders and, lifting him clear of the ground, whirled him round and round between the two trains until the passenger train had passed, when he dropped to the ground partially stunned. His head, arms and shoulders were considerably bruised, but not seriously.

#### He Wanted His Bed Made Up.

The Chicago Tribune tells of an amusing incident which recently occurred on the incoming morning train from St. Paul. It was in the Pullman car, and just as the train neared Elroy a verdiant-looking specimen reached up suddenly and denied the bell-rope. The train, of course, came to a stand-still, while conductor and porter rushed into the car to ascertain the cause for the detention. Imagine the conductor's feelings when our rural friend arose and said: "Gentlemen, you must excuse me. I wanted the porter, who was in the forward end of the car, to make up my bed, and thought that if I pulled the rope that would fetch him."

#### A Complicated Case.

The other day, as Conductor Minot, of the Pan Handle, was leaving this city on his trip East, he found a female passenger who had a ticket to Dayton via the Cincinnati, Hamilton & Dayton. He explained that she was on the wrong train, that her ticket was not good, and that she could leave the train at Irvington and wait for the train on the other road, or he would send her back to the Union Depot, where she could wait for the train on the other line over which she was ticketed. The woman seemed to understand the explanation, but as soon as Minot left her an old lady occupying the seat in front of her said:

"These roads are colleague together, and their tickets are good on any road. That is just a trick of the conductor to get money out of you and steal it from the company. This road goes to Dayton, and if I were you I would sit right here."

When Minot returned, the woman could not be made to understand why her ticket was not good on any road running to Dayton, and, in spite of the patient and polite explanations of the conductor, she persisted in not understanding it. Finally a kind-hearted Hebrew, who was seated op-

posite, thinking to relieve the embarrassment of the woman, offered to take her ticket and pay her fare to Richmond, over half the distance. She accepted, passed her ticket over to him, and he paid the fare to Richmond. Then she quieted down until Minot came through the car, when she asked: "Isn't that ticket worth more than the fare to Richmond?" "Certainly; worth a third more," was the reply.

"Well, I ain't going to be swindled in that way, and I want my money back."

"I have nothing to do with that," replied Minot, "you sold your ticket; your fare has been paid to Richmond, and I cannot aid you."

Then she went for the Hebrew, accused him of being a swindler, and he finally told her that all he wanted was his money, and she could have her ticket. Minot came back and she called him again and said:

"Give that man his money back, so I can get my ticket, and I will leave this road, which is run by swindlers."

"Upon your agreement to leave the train I will do it," said he, "and send you back to Indianapolis."

He then gave the money back and the ticket was returned. Presently the train stopped at Cumberland, and the conductor asked her to get off.

"I have changed my mind," was the answer.

"Then you must pay your fare."

"Pay my fare, you swindler! Why, I can prove by every one in the car that you said my fare was paid!"

"Of course I did, but I gave the money back."

"Yes, you gave it to that Jew. You don't pretend that you gave it to me. You want to rob me, but I won't allow it. I am on this train to go to Richmond, and I intend to do it."

And she did. Minot is consulting a lawyer on the case.—*Indianapolis Journal*.

#### More Long Railroad Service.

It may not be known to many of our readers, more especially the younger members of the community, that the man who is superintending the laying of the Central's Cross-town Railroad tracks on the Terrace, was an apprentice in track-laying and helped build the old Buffalo & Niagara Falls Railroad, running from the Terrace to the Falls, in 1887—forty-two years ago. His name is Erastus B. Jacobs, and he and his father began the work on the first Terrace road June 15 of that year. Mr. Jacobs is now quite gray, but in his daily work for the Central Company he displays all the activity of youth. Since 1887 he has been in the employ of the New York Central, New York & Erie and Lake Shore railroads, his connection with the last two named corporations covering a period of about 20 years. The tracks of the Buffalo & Niagara Falls Railroad ran to the market building, which stood just back of the Liberty Pole now is.—*Buffalo Commercial Advertiser*, Aug. 26.

#### Jumping from the Train.

Saturday night last a gentleman, accompanied by his insane wife and a guard to look after her safety, left Atlanta by the passenger train of the Central Railroad *en route* to Milledgeville, where the unfortunate lady was to be delivered to the authorities of the lunatic asylum for safe keeping during the period of her insanity. Shortly after leaving the city the two male members of the trio consigned themselves to the arms of Morpheus, as it were, and while in that unconscious condition the lady got up from her seat and, unseen by anybody, went through the back door of the car and jumped off.

She was not missed until the train commenced to approach Barnesville, when the husband and his guard were aroused from their slumbers by the whistle of the locomotive, announcing the approach of the train to that city. A diligent but fruitless search was made by them on the train. The gentleman got off at Barnesville and summoned to their assistance the marshal. The following morning, the marshal, accompanied by the guard and the husband, took the back track, and after spending a considerable time in searching the woods on either side of the track, finally flushed the object for which they were looking in a dense piece of woods, hid away under a bush pile. The cross-ties and earth for some distance from the spot where the lady jumped off showed that she had held on to the cars and had been dragged by the train some distance before she let loose her grip. She appeared to be in no way injured by the fall or the blows that she must have received while being dragged along at a rapid rate of speed by the train. The lady was carried to Barnesville, where she remained until the next down passenger-train arrived, upon which the trio took passage for Milledgeville.—*Atlanta Constitution*, Aug. 26.

#### An Extraordinary Verdict.

The Coroner's jury in the case of young Maggs, alias Trustsell, who was run over and killed by the cars near Cannonsburg, last week, returned the following remarkable verdict: "Isaac Newton Trussell, on the 11th of August, 1879, not having the fear of God before his eyes, but being moved and seduced by the instigation of the devil, jumped or fell off the cars, accidentally, casually and by misfortune came to his death in manner and by means aforesaid and not otherwise."—*Pittsburgh Telegraph*, Aug. 18.

#### Sixty Miles an Hour.

"How fast do you think we are traveling?" Charley Fraser, one of the oldest engineers of the New York Lake Erie & Western Railroad, asked a *Sun* reporter, as they were standing together on the foot-board of locomotive No. 309, rushing over the meadows toward Rutherford Park.

"I should think we were going nearly a mile a minute."

"A mile a minute!" said Fraser. "I doubt if we ever rode a mile a minute. Few locomotives have driving wheels over five-feet, and I have my doubts if a five-foot wheeler can be pushed a mile a minute. People have a very erroneous idea of the speed of railroad trains. We are not going now more than 35 miles an hour, and this is very fast. Few trains make this speed. The passengers in the cars would think we were going a mile a minute sure, if I was to pull out the throttle so as to send her 40 miles an hour."

The express trains make no such time as the local trains. Where we lose is with so many stops. No man can stand on a platform car and face the wind going a mile a minute, and live. The breath would be blown out of his body. You couldn't count the telegraph poles going a mile a minute. Talk to an old engineer of that rate being made by a passenger train, and he would laugh. I made a mile a minute once, however. It was when I was but 18 years of age. I was an engineer then, in charge of a fine six-foot-wheel locomotive. There were a lot of railroad moguls on board, and the object was to make the best time we could. They were to ring the gong when the speed was a mile a minute. I thought we were making it for some time before the bell rang. At length, on a down grade, with a full head of steam, when we were spinning all as if we were all going to destruction, and the motion of the piston going over the centre could no longer be distinguished, the bell rang. We had reached the rate of a mile a minute. It was the fastest I ever rode, before or since. I tried hard to make a mile a minute on subsequent miles, but lacked three or four seconds every time. I couldn't squeeze another mile inside of the sixty seconds. When you hear a man telling about riding in a passenger train that ran a mile a minute, don't say any-

thing, but mentally scratch off a good allowance."—*New York Sun*.

"Charley Fraser, one of the oldest engineers of the New York, Lake Erie & Western Railway," is slightly out of the way when he doubts that a five-foot wheeler can be pushed a mile a minute. The schedule time of train No. 107, on the Central Railroad of New Jersey, from Westfield to Elizabeth, is just seven minutes, and the distance seven miles. To make Elizabeth, stop, and get away on time, the run must be made in six minutes. Engine 166, with a five-foot wheel, has repeatedly hauled the train, and made the schedule time, while engine 141, with a five-foot-six wheel, has rolled the miles off at the rate of 54 seconds to the mile, and in some miles doing a little better. Engine 101, with a five-foot wheel, has started from Bound Brook and stopped at Somerville in 4½ minutes. The distance is over four miles. Engine 97, with a five-foot-ten-inch wheel, in her remarkable run some three years ago, went from Easton to Somerville in 39 minutes—the distance is 38½ miles—she hauling three passenger coaches. The speed of engines varies. While some are smart, others are lazy. There is still another drawback to speed in that the officials do not allow engines to carry over 120 pounds of steam. This is not pressure enough to maintain a high rate of speed for any distance.—*Plainfield (N. J.) Bulletin*.

#### OLD AND NEW ROADS.

**Atlantic & Great Western.**—The certificates or bonds to be issued by the Reconstruction Trustees will bear 6 per cent. interest and are now offered in London. They are issued to raise money for the completion of the foreclosure proceedings, the expenses of reorganization, etc. The bonds are of \$500 dollars (\$2100 each), and the issue price is 90, payable 5 per cent. on application, 10 per cent. on allotment, 20 per cent. on Oct. 15, 25 per cent. on Dec. 15, and 30 per cent. on Jan. 15. The circular announcing the issue says: "The proceeds of the present issue will be specially deposited in the hands of the trustees, under a deed of trust securing the application of the money only for the purposes named in the present prospectus. The £500,000 certificates now issued will be exchangeable as soon as practicable after the formation of the new company for prior lien bonds of that company, the security for which will be: 1. A first charge upon the property and road of the Atlantic & Great Western Railroad Company situated in the state of New York. 2. A first charge upon the property and road of the Atlantic & Great Western Railroad Company situated in the state of Pennsylvania. 3. A first charge upon 141-388 parts of the valuable lease of the Cleveland & Mahoning Railroad. 4. A second charge upon the property and road of the Atlantic & Great Western Railroad Company situated in Ohio and 247-388 parts of the Cleveland & Mahoning lease. As soon as the Ohio mortgages shall have been extinguished, the prior lien bonds will become a first charge on the entire property and the whole of the Cleveland & Mahoning lease. The length of the line situated in the states of New York and Pennsylvania is about 175 miles, and in the state of Ohio 247 miles. The trustees, acting as they do in their trust capacity, will not, of course, be personally responsible either for the principal or interest of the present issue. The total amount of the above prior lien bonds issue will be limited to £1,800,000 or \$8,000,000. The £1,100,000 (\$5,500,000) remaining after the exchange of the present issue will only be issued for the purposes of the reorganization, and for objects proportionately increasing the security upon which they are based. These objects are mainly: The extinguishment of the Ohio mortgage, the narrow-gauging of the road, the provision of steel rails and suitable rolling stock, and the improvement of the road."

**Bangor & Bucksport.**—The Bangor (Me.) *Commercial* states that this road is to be changed to a narrow-gauge road, and equipped with first-class narrow-gauge stock. The lease with the European & North American Railway Company expires Oct. 1. R. P. Buck, of New York, and Sewall B. Swazy of Bucksport, are the trustees of the Bangor & Bucksport Railroad. Mr. Buck is really the principal owner of the road, having bought out many of the other bondholders. The rolling stock will be on the spot, and as soon as the road passes out of the jurisdiction of the European & North American Railway the changes will be made. The road will be managed by L. L. Lincoln, of Augusta, who has perfected a lease of the same for a term of years. Mr. Lincoln is a railroad man of considerable experience. He was for some years Superintendent of the First Division of the Maine Central Railroad.

**Burlington, Cedar Rapids & Northern.**—The board of directors has not yet taken final action on the proposed lease to the Chicago & Northwestern, and it is reported that a better offer has been received from another company.

Another meeting of the board was held Sept. 3. The proceedings were not made public; but it was ascertained that the board voted not to approve the lease of the road to the Chicago & Northwestern Company. It was then voted to accept a proposal to lease the road made by the Chicago, Rock Island & Pacific Company. The terms are understood to be substantially the same as those offered by the Northwestern, that is, the lessee will pay the interest on the bonds and dividends on the stock at the rate of 3 per cent. for three years, 4 per cent. for two years and 5 per cent. thereafter; dividends to be paid only on the \$5,500,000 stock already issued. This action is, of course, subject to ratification by the stockholders of both companies.

**Camden & Atlantic.**—Notice is given that the second mortgage bonds, the principal of which will fall due Oct. 1, will be paid on and after that date at the office of Drexel & Co., in Philadelphia. Interest will cease from date of maturity. There were \$497,000 of these bonds outstanding by the last report.

**Catasauqua & Fogelsville.**—The branch of this road now extending from Trexlertown, in Lehigh County, Pa., to Lichty, five miles, is to be extended southwest about three miles to Tipton, on the East Pennsylvania Branch of the Reading road. This branch is used chiefly for carrying iron ore and limestone, and the extension will reach several mines.

**Chateaugay.**—This road is to extend from Dannemora, N. Y., the terminus of the Dannemora road, northwest to the Chateaugay iron mines, a distance of 17 miles. Work has been in progress some time, and 12 miles are now graded. The track is laid from Dannemora out six miles, and a construction train is running.

**Chicago & Block Coal.**—This company, which lately filed articles of incorporation in Indiana, is the successor of the old Indiana North & South Company, whose road was sold under foreclosure and bought in by the creditors. The road is in operation from Attica, Ind., to Veedersburg, 15 miles.

**Chicago, Millington & Western.**—Chicago papers report that this road, lately sold under foreclosure, has been sold by the purchasers to the Chicago, Burlington & Quincy. That company will change the 11 miles of the road to standard gauge, and use it for hauling ballast from the gravel pit in which it terminates. It is nearly parallel with the Chi-

cago, Burlington & Quincy, and but a very short distance from it, so that it might be used as a third track between Chicago and Riversides.

**Chicago, Milwaukee & St. Paul.**—The track of the Hastings & Dakota Division is laid to Appleton, Minn., 24 miles westward from last winter's terminus at Montevideo, and 182 miles from Hastings. Work is progressing steadily on the extension of the line to Ortonville on Big Stone Lake, which is to be the terminus this year.

**Chicago, Saginaw & Canada.**—This road is now opened for business to Lakeview in Montcalm County, Mich., 12 miles west of the late terminus at Edmore, and 36 miles from the eastern terminus at St. Louis. The road is now controlled by the Detroit, Lansing & Northern.

**Chicago & Western Indiana.**—This company is building a line from Dolton, Ill., into Chicago, intended to furnish an entrance into the city for the Chicago & Eastern Illinois road. Some opposition has been manifested by owners of property to the laying of the tracks on Stewart avenue and other streets, and the City Council has been asked to require the company to pay damages to holders of adjoining property for any injury which may be done them. On the other hand, many holders of lots are represented as favoring the building of the road on the line selected.

**Cincinnati Southern.**—The Trustees have lately given instructions to their Chattanooga agent to secure the right of way from the junction with the Western & Atlantic at Boyce's, Tenn., to Chattanooga, five miles. This is taken as showing their intention to build an independent track into Chattanooga at once, instead of using the Western & Atlantic track.

The track on the southern end is now laid to Wartburg, in Morgan County, Tenn., 85 miles from Boyce's, and 15 miles beyond the point last noted. This leaves a gap of about 46 miles, between Wartburg and the Kentucky line, to which track has been laid from the north. The tracklayers from the two ends of the road are expected to meet at New River, 25 miles from Wartburg, where a high bridge is to be erected, which will take several weeks.

The Cincinnati Railway Company, lessee, reports to the Trustees for July as follows, for the 158 miles from Cincinnati to Somerset:

Gross earnings (\$423 per mile).....	\$66,902.58
Actual working expenses (24.2 per cent.).....	16,237.55

Net earnings (\$321 per mile).....

\$50,665.03

Interest on lessee's capital.....

1,750.00

Balance due Trustees.....

\$48,915.03

The Trustees state that the proceeds of last \$1,000,000 of city bonds sold were \$1,017,169.57. The sale was made at 101.68 and accrued interest.

**Dayton, Covington & Toledo.**—Track on this road is now laid to Milton, O., five miles north of the late terminus at Harrisburg, and 11 miles from the junction with the Dayton & Union road near Trotwood. Regular trains were put on Sept. 1.

**Dayton & Southeastern.**—Receiver J. E. Gimperling reports as follows for the period from his appointment, Aug. 9, 1878, to July 31, 1879:

Passenger earnings.....	\$28,630.51
Freight.....	60,961.17
Other sources.....	4,423.90

Total earnings (\$1,349 per mile).....

\$94,015.58

Expenses and taxes (69 per cent.).....

64,906.81

Net earnings (\$418 per mile).....

\$29,108.77

Betterments and new equipment.....

17,462.05

Balance.....

\$11,646.72

Betterments of road cost \$8,826.75; the chief items were \$2,921.45 for ballasting, \$2,387.05 for new sidings, and \$1,320.55 for fencing. The amount paid for new equipment was \$8,385.30, of which \$2,820 was paid for 14 flat cars, and \$6,015.30 on a contract to buy 70 box and stock cars.

**Delaware, Lackawanna & Western.**—It is now reported that negotiations are again in progress for the purchase by this company of the Hoboken Land & Improvement Company's ferries between Hoboken, the terminus of the road, and New York. It is thought that the purchase will be made. The ferries are now used by the railroad under a contract which will terminate by notice Jan. 1 next.

**Duck River Valley.**—Track is all laid on the extension of this road from Lewisburg, Tenn., southeast to Petersburg, a distance of 14 miles. The road is now 34 miles long, from the junction with the Nashville & Decatur at Columbia to Petersburg.

**Eel River.**—The following circular is dated Sept. 1, 1879. Notice is hereby given that the Wabash Railway Company has acquired, by lease, and has this day taken possession of the Eel River Railroad and its equipments, and will hereafter operate said road as a branch of the Wabash Railroad.

"All accounts pertaining to business of the Eel River Railroad prior to Sept. 1, 1879, will be settled by the Eel River Railroad Company, and all accounts pertaining to business dating from and after Sept. 1, 1879, will be settled by the Wabash Railway Company.

"Officers and agents of other roads will please address their reports and communications accordingly."

**Flint & Pere Marquette.**—It is stated that the eastern line from Ludington, the terminus of this road, across Lake Michigan to Milwaukee, is to be reopened, and that it will be kept running all winter.

**Grand Trunk and the Great Western.**—Negotiations for a pooling agreement still continue between the officers of these two companies in London, but without apparent result so far, both parties adhering to their original positions.

**Illinois Midland.**—Certain creditors of this road have begun a suit in the United States Circuit Court in Springfield, Ill., charging that the bonds of the road were illegally issued and passed to their present holders through collusion of former officers of the company. The case is set for a hearing at the October term.

**Indianapolis, Delphi & Chicago.**—This road is now completed to Delphi, Ind., 18 miles south by east from the late terminus at Monticello, and 39 miles from the western terminus, Renssalaer. The extension was to be formally opened Sept. 4 by an excursion and public meeting.

**Ithaca, Auburn & Western.**—An effort is to be made to raise money by stock subscriptions to complete this road from its present terminus at Scipio, N. Y., northward to Auburn, about 20 miles. The road was formerly the Western extension of the New York & Oswego Midland, and is completed from Freeville, N. Y., to Scipio, 27 miles.

**La Fayette, Bloomington & Muncie.**—This company is having surveys made for a branch from Boswell, in Benton County, Ind., northwest to Milford, Ill., on the Chicago & Eastern Illinois road, a distance of 16 miles. The object is to secure a short connection for Chicago business,

independent of that over the Cincinnati, La Fayette & Chicago road.

**Logansport, Crawfordsville & Southwestern.**—An appeal from the decree of foreclosure and sale will be taken by some of the parties in interest. The appeal is not against the foreclosure itself, but from some of the terms of the decree, and will probably not postpone the sale of the road.

**Louisburg & Rocky Mount.**—A survey is to be made of this proposed road, from Louisburg, in Franklin County, N. C., eastward to Rocky Mount on the Wilmington & Weldon road, a distance of about 30 miles. A committee has been appointed to secure subscriptions, and some assistance is expected from the Wilmington & Weldon Company.

**Manhattan, Alma & Burlingame.**—It is proposed to revive this company and resume work on the road, on which considerable work was done in 1872. The proposed line is 55 miles long, from Manhattan, Kan., southeast through Alma to Burlingame.

**Manhattan Elevated.**—This company on Sept. 1 took formal possession of all the Elevated roads in New York, under the leases heretofore executed. The lines will be divided into the Eastern Division, consisting of the Third and Second avenue roads, and the Western Division, including the Sixth and Ninth avenue roads.

The Ninth avenue line is nearly completed to 135th street, and trains will soon run to that point.

**Marquette & Mackinac.**—At the meeting of the Board of Control of State Lands in Lansing, Mich., Aug. 27, a long letter was received from the Marquette, Sault Ste. Marie & Mackinac Company, setting forth the efforts heretofore made to fulfill its contract and build the road, and expressing entire willingness to surrender the contract, provided a new award could be made to parties able to do the work. An opinion was also received from the Attorney General to the effect that it was clearly within the power of the Board to annul the old contract and make a new one. The Board then passed the following resolutions:

"Whereas, No work has been done toward the construction of a line of railway from the straits of Mackinac to Marquette harbor, on Lake Superior, pursuant to a contract heretofore entered into between the Marquette, Sault Ste. Marie & Mackinac Railroad Company and the Board of Control of State Swamp Lands; and

"Whereas, The said company has by writing duly filed with this board signified its willingness to have its said contract annulled, provided always that its contractor, Dr. Laman, be unable to furnish satisfactory security for the speedy construction of said road, and reasonable assurances can be given by other parties for the construction of said road; and

"Whereas, Dr. Laman has failed to offer to this board satisfactory security for the construction of said road, and the Detroit, Mackinac & Marquette Railroad Company has given satisfactory assurances to this board for the speedy construction of said railroad.

"Resolved, That the contract heretofore existing between this board and the Marquette, Sault Ste. Marie & Mackinac Railroad Company be and the same is hereby annulled and wholly rescinded;

"Resolved, That this board do immediately enter into a contract with the Detroit, Mackinac & Marquette Railroad Company for the construction of said railroad.

"Resolved, That the Attorney General be and hereby is requested to draw the proper contract and insert in it a proviso enabling the board of control to cancel said contract in default of the construction of 20 miles of said railroad on or before the 31st day of December, 1879."

The board adjourned to meet Sept. 4, to execute the contract. The Detroit, Mackinac & Marquette is the company lately organized in Detroit to take the contract and build the road.

**Missouri, Iowa & Nebraska.**—On the extension of this road westward track is now laid to Corydon, Ia., 28 miles beyond the old terminus at Centreville, and 118 miles from Keokuk, Ia., the operating terminus. The road owned is now 115 miles long, from Alexandria, Mo., five miles below Keokuk, to Corydon. Trains run to the new terminus this week.

**Montreal, Portland & Boston.**—A lease of this road to the Southeastern Railway Company, of Canada, has been concluded, and the lessee took possession Sept. 1. This gives the Southeastern a line from Newport, Vt., to Longueuil on the St. Lawrence, opposite Montreal.

**Nevada.**—Ground was broken Sept. 1, on this company's road, which is to run from the Central Pacific, at Battle Mountain, Nev., southward to Austin, about 90 miles. It will serve a large and valuable mining country in the Austin and Reese River districts.

**New Jersey Midland.**—In Newark, N. J., Sept. 1, argument was heard in the Court of Chancery on the final decree of foreclosure and sale. After the hearing the Chancellor decided that he would issue the decree in accordance with the terms of the mortgage and leave other equities between the parties to be ascertained by a Master before the day of sale.

**New York & Oswego Midland.**—Notice is given that all holders of Receiver's certificates and first-mortgage bonds who desire to join the committee in the purchase of the road, must deposit their securities with the Third National Bank in New York by Sept. 15. The committee now holds about 90 per cent. of these classes of debt.

**Nodaway Valley.**—This company has been organized to build a branch of the Kansas City, St. Joseph & Council Bluffs road from Bigelow, Mo., up the Nodaway River to the Iowa line. The distance is about 33 miles, and the line is intended to be a local feeder.

**Ohio & Mississippi.**—Notice is given to first-mortgage bondholders that, by direction of the Court, the Receiver, on Sept. 1, 1879, will pay, at the office of the company, No. 52 William street, New York, the interest coupons of the first-mortgage bonds which fell due July 1, 1879, except such coupons as may be held by the Union Trust Company of New York for the benefit of the sinking fund for said first-mortgage bonds.

It is stated that private dispatches received in New York announce that in the Dimpel suit against this company, the United States Circuit Court has decided that the Springfield Division bonds were legally issued, and are a valid obligation of the company.

**Owensboro & Nashville.**—This company will receive until Sept. 8 proposals for the following work:

1. For the completion of the tunnel and approaches on Section 88, near Owensboro Junction, Ky.

2. For the completion of the work of clearing and grading on Section 42.

3. For the completion of the work of clearing and grading, including the tunnel, on Section 49.

4. For the completion of the work of clearing and grading, including the tunnel, on Section 50.

5. For the completion of the work of clearing and grading on Section 58.

The work on sections 38, 42, 49 and 50 to be completed by Dec. 1, 1879, and on Section 58 by Jan. 1, 1880. Additional information can be obtained from E. F. Falconet, Chief Engineer, at Nashville, Tennessee.

**Pennsylvania.**—Argument on the bill filed by Receiver Lathrop, of the New Jersey Central, to enjoin the construction of a road from this company's line in Jersey City, N. J., to the National Storage Company's docks at Communipaw, was begun in the Court of Chancery at Newark, N. J., Sept. 3. The case was opened for plaintiff and then adjourned for two days. Several counsel are to be heard on both sides, and the hearing will occupy nearly a week in all probability.

**Peoria & Springfield.**—The Pekin, Lincoln & Decatur Company, which has leased this road for some time, last week restored possession of the road to Receiver Hilliard, in pursuance of an order from the court. The road extends from Peoria, Ill., to Pekin, 9½ miles.

**Pine River Valley & Stevens Point.**—This narrow-gauge road makes the following statement for the half-year ending June 30:

Gross earnings (\$500 per mile) ..... \$8,001  
Expenses (47.66 per mile) ..... 3,813

Net earnings (\$262 per mile) ..... \$4,188

The road is 16 miles long, from Richland Centre, Wis., to Lone Rock, and depends entirely upon local business.

**Portland & Ogdensburg, Vermont Division.**—At St. Johnsbury, Vt., Aug. 28, the foreclosure cases upon the first and preference mortgages came before Chancellor Powers, pursuant to adjournment from July 20. No additional evidence had been taken, and counsel for Amherst College announced they should submit to such decree as the trustee asked for. Judge Poland, trustee, claimed the foreclosure of both mortgages, and the Chancellor granted the same. Lien claimants' bill was dismissed *pro forma*, but several parties entered an appeal.

The decree as entered recognizes the preferred mortgage bonds as a lien on the property prior to that of the first-mortgage bonds, whose holders assented to the execution of the preferred mortgage, and sets aside all other claims to prior liens.

**Quebec, Montreal, Ottawa & Occidental.**—The Piles Branch of the Eastern Division is now completed and opened for business from Trois Rivieres, P. Q., north to Grande Piles in Champlain County, a distance of 30 miles.

**Quincy, Missouri & Pacific.**—The *Commercial and Financial Chronicle* says: "The lease of this road to the Wabash has been effected, the papers having been signed a few days since. The control is for 99 years. The Quincy, Missouri & Pacific Company, by this agreement, is to build the road from its present terminus to the Burlington & Southwestern crossing near Milan, and from that point the Wabash will push it westward to the Missouri River as rapidly as circumstances will permit."

**St. Paul & Sioux City.**—This company has bought and will add to it by consolidation the Sioux City and St. Paul road. The two roads form a continuous line, the St. Paul and Sioux City extending from St. Paul, Minn., to St. James, 122 miles, and the Sioux City and St. Paul from St. James to Le Mars, Ia., 124 miles, and using the Illinois Central tracks from Le Mars to Sioux City, 24 miles further. The two roads have always been under the same management and have had nearly the same ownership. The purchase carries with it the control and substantial ownership of the branches, the Worthington and Sioux Falls, now completed from Worthington, Minn., to Sioux Falls, Dakota, 59 miles; the Luverne and Rock Rapids, under construction from Luverne, Minn., to Rock Rapids, Ia., 28 miles; the Ft. Dodge branch, under construction from Crystal Lake, Minn., to Blue Earth City, 34 miles, and to be extended to Ft. Dodge, Ia., 80 miles further, and the Minnesota & Black Hills, under construction from Heron Lake, Minn., to Flandrau, Dak., 60 miles, to be extended westward into Dakota hereafter. These branch lines when completed will bring the mileage up to about 540 miles, of which 460 miles are completed or under construction.

The stock and debt of the consolidated road by the last reports were as follows:

	Common stock	Preferred stock	Bonds
St. Paul & Sioux City	\$2,400,000	\$2,021,607	\$113,278
Sioux City & St. Paul	2,800,000	.....	2,644,740
Total	5,200,000	2,021,607	2,758,018

It is proposed to issue \$4,800,000 bonds secured on the consolidated property, and a mortgage has already been executed; also to issue \$4,600,000 preferred stock and \$4,600,000 common stock. Provision will be made for further issues as the company's lines are extended, but the outstanding securities will be limited strictly to \$30,000 per mile, \$10,000 in bonds, \$10,000 in preferred, and \$10,000 in common stock.

**St. Paul Union Depot.**—At a meeting held last week in St. Paul, Minn., all the lines entering the city were represented, and plans for a union passenger depot to accommodate all of them were discussed. Progress was made toward a settlement of differences, but no final action was taken.

**Selma & Greensboro.**—This is now the name of the road formerly known as the Selma, Marion & Memphis. It was sold under foreclosure in July, 1878, and bought by the bondholders, who have since organized under the present name. The property, however, is held by a receiver. The road is in operation from Junction, on the Alabama Central, 14 miles from Selma, Ala., to Greensboro, 35 miles.

**Strike at Chicago.**—The strike of the laborers employed in the freight houses of the Lake Shore road in Chicago, which began last week, has extended to the men employed in the depots of the Illinois Central, the Michigan Central and other roads. On Sept. 2, a number of new hands had been procured, but some trouble had been experienced in handling freight.

**Toledo, Delphos & Burlington.**—On the gap of 24 miles in this road between Bluffton, Ind., and Willshire, O., track has been laid from Bluffton, east by north to Decatur, 15 miles. Work is in progress on the remaining nine miles.

**Toronto, Grey & Bruce.**—The *Toronto Monetary Times* says: "It is now said that if the Toronto, Grey & Bruce Railway does not get new and additional municipal bonuses, the road will have to be closed. The company's engineer is credited with having made this statement at Mount Forest. It was added that the piles of some of the bridges are decayed, and that 50,000 new ties are required. To these necessary repairs the increase of the gauge is tacked, and the municipalities are given to understand that they must furnish half the amount that will be required for those purposes."

**Wabash.**—The *Detroit Post and Tribune* gives as the result of a conference held in that city last week the following:

ing: "The Wabash extension from Toledo to Detroit is to be built this season, the Grand Trunk, Great Western and Wabash each to furnish an equal quota of the necessary means—not in the shape of bonds or guarantees, but in actual funds. The three roads will occupy a union depot in this city—probably that of the Detroit, Grand Haven & Milwaukee Company. The work of constructing the road is to be commenced at the earliest possible day."

**Western Counties.**—The contract for all the station buildings on this Nova Scotia road has been let to Kinney, Haley & Co., of Yarmouth, N. S. There are 17 buildings required, and they are to be finished before the close of the year.

#### ANNUAL REPORTS.

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#### Davenport & Northwestern.

This company, which lately sold its property to the Chicago, Milwaukee & St. Paul Company, owned a line from Davenport, Ia., north by west to Fayette, 129 miles, with a branch from Eldridge to Maquoketa, 32 miles, making 161 miles in all. The following figures are from the report just made to the Iowa Railroad Commission for the year ending June 30, 1879.

The company is successor

## ILLINOIS MINOR RAILROADS IN 1878.

NAME OF ROAD.	PROPERTY.			LIABILITIES.			TRAFFIC.			EARNINGS.			Dividends.						
	Miles owned.	Miles leased.	Stock.	Bonds.	Other debt.	Freight and other cars.	Train mileage.	Passenger mileage.	Tonage mileage.	Rate per ton per mile.	Rate per passenger per mile.	Gross earnings.	Net earnings.	Per cent. of exp.	Per cent. of ex.	Net earnings per mile.	Gross earnings per mile.	Net earnings per mile.	
Cairo & Vincennes*	157	10	12	160	60	\$356,200	\$5,000,000	\$173,724	234,129	1,623,711	12,741,388	Cts. 3.89	Cts. 1.63	\$296,550	\$261,414	\$35,136	\$1,889	\$276	80
Carbondale & Shawneetown.	19	1	1	236,000	749	26,000	1,750,000	44,523	176,1328,000	219,019	272,351	8,544	1,500	580	64	87,326	1,227	45	
Chicago & Iowa*	80	24	15	11	176	1,328,000	189,341	115,060	145,060	189,341	3,824,040	2,600,100	2,144	2,144	844	59	29,375	2,144	844
Chicago & Pacific*	88	7	7	145	215,4,112,500	2,963,000	148,730	254,308	208,009	254,308	46,329	1,551	285	80	80	80	80	80	
Chicago & Paducah*	105	6	8	215,4,112,500	2,963,000	148,730	245,423	150,023	93,400	2,587	993	62	62	62	62	62	62	62	
Chicago & Peoria & Southwestern*	94	2	4	46	826,000	1,000,000	262,084	408,188	280,589	127,599	5,445	1,701	66	66	66	66	66	66	
Cincinnati, La. Fayette & Chicago.	56	19	10	8	562	1,940,200	1,808,000	300,000	327,130	22,207	23,025	818	677	104	21	21	21	21	
Decatur, Mattoon & Southern.	32	1	1	28	300,000	200,000	30,000	64,930	47,297	17,633	5,900	1,470	73	73	73	73	73	73	
East St. Louis & Carondelet.	12	3	1	28	300,000	200,000	30,000	213,523	146,927	56,596	3,863	1,155	70	44	44	44	44	44	
Evansville, Terre Haute & Chicago.	49	7	6	329	450,000	1,100,000	113,578	19,379	13,231	6,148	646	205	69	69	69	69	69	69	
Galena & Southern Wisconsin.	30	2	1	29	178,348	255,550	37,347	14,860	193,581	3.10	3.10	55,176	45,127	10,049	2,207	402	82	82	
Grand Tower.	25	6	2	281	300,000	30,000	1,519,440	18,393	244	1,1218	10,795	423	101	97	97	97	97	97	
Grayville & Mattoon (74 months).	71	1	1	9	1,137,500	750,000	34,320	230,372	207,014	32,358	1,362	184	87	87	87	87	87	87	
Illinois Midland*	158	18	13	9	404,2,000,000	4,175,000	1,154,200	290,347	1,867,927	7,506,334	3.20	2.16	174,964	106,639	68,325	9,720	3,796	61	16,000
Illinois & St. Louis.	18	5	4	304	1,300,100	200,000	23,371	48,140	30,000	32,500	26,609	10,647	1,709	483	72	72	72	72	
Jacksonville, N. W. & S. E.	31	2	2	38	375,847	610,000	6,825	35,998	30,288	5,710	1,600	184	84	84	84	84	84	84	
Louisville, New Albany & St. Louis.	26	2	1	9	377,700	6,333	46,562	5,00	12,118	10,795	423	401	15	97	97	97	97	97	
Paris & Danville*	103	5	4	70	1,612,100	2,500,000	98,118	213,371	101,384	21,087	1,198	212	82	82	82	82	82	82	
Pekin, Lincoln & Decatur.	77	13	13	574,000	1,076,000	47,174	183,835	1,421,498	5,708,040	2,20	2,20	217,369	130,603	77,700	2,823	1,010	64	87,320	
Peoria, Pekin & Jacksonville.	83	13	11	188	1,239,700	2,000,000	134,332	293,285	293,285	22,501	198,307	29,194	2,741	351	87	87	87	87	
Rock Island & Mercer County.	22	1	1	150,000	32,500	268,381	3.80	37,256	26,609	10,647	1,709	483	72	72	72	72	72	7,500	
Springfield & Northwestern*	45	3	2	94	1	40,000	2,800	51,800	50,307	3,493	1,045	78	93	93	93	93	93	93	
Sycamore & Cortland.	5	1	1	1	1	40,000	2,800	11,255	138,000	119,155	5,00	16,909	6,759	10,240	3,400	2,048	40	40	
Toledo, Peoria & Warsaw.	237	10	44	25	5,256	902,845	7,750,650	48,582,030	3.27	1,65	1,319,596	885,829	433,737	5,342	1,756	67	188,003	188,003	
Wabash, Chester & Western.	42	2	3	42	250,000	200,000	6,211	35,079	54,983	10,004	884	183	183	183	183	183	183	183	

\* In charge of Receivers.

† Deficit.

These figures are from the reports made to the Illinois Railroad Commission for the year ending June 30, 1878. They include all roads whose reports are not otherwise given or included in lessees' reports. The statistics of traffic are imperfect, many roads failing to report. Since the close of the year the Chicago & Pacific, the Paris & Danville and the Springfield & Northwestern have been sold under foreclosure. The Peoria, Pekin & Jacksonville has passed into the hands of a receiver.

## St. Paul &amp; Sioux City.

This company owns a line from St. Paul, Minn., to St. James, 123 miles. It is extended to Sioux City by the Sioux City & St. Paul road. The latest report is for the year ending Dec. 31, 1878.

The company has a land grant of 554,269 acres, from which 203,588 acres have been sold for \$1,898,822.28. During 1878 sales of 97,051 acres were made for \$661,819.14. Receipts on account of land contracts were \$466,166.38, of which \$339,472.88 was paid in land stock, the balance in cash. There were land contracts amounting to \$545,101.34 on hand at the close of the year.

The equipment owned consists of 17 engines; 7 passenger and 6 baggage and mail cars; 392 box and stock, 83 flat and 10 caboose cars; one-half interest in a business or pay car. Two engines, 1 passenger, 2 baggage, 100 box and 20 flat cars were added during the year.

The general balance sheet (condensed) was as follows:

Stock (\$10,072 per mile).	\$2,400,000.00
Preferred stock and scrip (\$17,008 per mile).	2,085,974.84
Equipment bonds.	49,000.00
Bills and accounts payable.	255,270.08
Profit and loss.	133,584.10
Total.	\$4,923,829.08

Expenditures on capital account were \$38,914.10 for new construction and improvements, and \$61,985.36 for additions to equipment.

The income account was as follows:

Balance from 1877.	\$27,700.31
Gross earnings.	602,754.00
Rents received, discounts.	10,850.03
Worthington & Sioux Falls stock.	26,206.10
Tand Department.	34,976.77
Total.	\$702,487.21

Working expenses.

Insurance, state tax, interest, etc.

Dividends on preferred stock.

Interest on bonds.

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